

DOES THE U.S. NAVY NEED TO ENLARGE HER COASTAL AND RIVERINE FORCE
CAPABILITIES TO EFFECTIVELY MEET THE JOINT, COMBINED, AND
UNILATERAL MISSIONS OF TODAY AND TOMORROW?

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

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B.S., U.S. Naval Academy, Annapolis, Maryland, 1985

Fort Leavenworth, Kansas
1996

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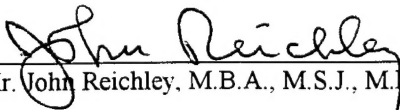
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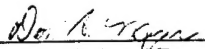
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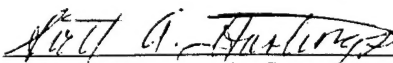
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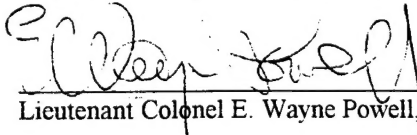
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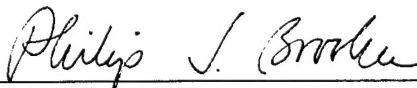
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ABSTRACT

DOES THE U.S. NAVY'S BROWN WATER FORCE STRUCTURE SUPPORT HER LITTORAL STRATEGY? LCDR Charles C. Denman III, USN, 81 pages.

This study examines the coastal and riverine force structure required to support the U.S. Navy's operations in the littoral environment. The White Paper "Forward ...From the Sea" reveals the Navy's support to the strategic ends, ways, and means outlined in the "National Security Strategy," emphasizing operations in the littoral environment. This study examines the brown water force structure needed to respond adequately to missions identified in the "National Security Strategy" and "National Military Strategy" in the regions specified in these two documents where littoral operations might be the appropriate response. The impetus for this research was to respond to a question similar to the thesis posed by the Naval Doctrine Command.

This study established baseline force requirements for riverine patrol and coastal interdiction operations by analyzing the Vietnam War. The figures for the number of boats required to patrol a given length of river or coast line are then used to determine the size of the brown water force required to respond adequately to the regions of potential conflict.

This study determined that the current brown water force structure was adequate to meet the requirements of the most demanding major regional conflict. The brown water force structure was not adequate to support two major regional conflicts at the same time. If the "National Security Strategy's" requirement that the armed forces be prepared to fight two nearly simultaneous major regional conflicts is interpreted to allow the brown water force to be deployed sequentially between conflicts, then the current brown water force structure meets the needs of the Navy's littoral strategy and the ends, ways, and means of the "National Security Strategy" and "National Military Strategy."

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LIST OF ABBREVIATIONS

AOR	Area of Responsibility
ARG	Amphibious Readiness Group
ASW	Antisubmarine Warfare
CINC	Commander in Chief
CNA	Center for Naval Analysis
CNN	Cable News Network
CNO	Chief of Naval Operations
CVBG	Carrier Battle Group
FID	Foreign Internal Defense
GCC	Gulf Cooperation Council
HSB	High Speed Boat (also SOC)
INSURV	Inspection and Survey (Board of)
IOC	In Operational Commission
JP	Joint Publication
Lant	Atlantic
LCM	Landing Craft, Medium
LCM(M)	Landing Craft, Medium, Mine
LIC	Low Intensity Conflict
LOC	Line of Communication
LPH	Landing Platform, Helicopter (Amphibious Assault Ship)
LSM	Landing Ship, Medium
LST	Landing Ship, Tank

MAAG	Military Assistance Advisory Group
MACV	Military Assistance Command, Vietnam
MATC	Mini Armored Troop Carrier
MOOTW	Military Operations Other Than War
MRC	Major Regional Conflict
MRF	Mobile Riverine Force
NAG	Naval Advisory Group
NATO	North Atlantic Treaty Organization
NDC	Naval Doctrine Command
NDP	Naval Doctrine Publication
NLLS	Navy Lessons Learned System
NSW	Naval Special Warfare
NSWC	Naval Special Warfare Command
NWP	Naval Warfare Publication
OAS	Organization of American States
OOTW	Operations Other Than War
OpNav	Operations, Naval (CNO's staff)
OSCM	Operations Specialist, Chief, Master (E-9)
Pac	Pacific
PB	Patrol Boat
PC	Patrol, Coastal
PCE	Patrol Craft, Escort
PBR	Patrol Boat, River
PGM	Motor Gunboat
PT	Patrol, Torpedo
PTF	Patrol Boat, Fast

PSYOP	Psychological Operations
QMC	Quartermaster, Chief (E-7)
RAG	River Assault Group
RIB	Rigid Inflatable Boat
SBS	Special Boat Squadron
SBU	Special Boat Unit
SEAL	Sea, Air Land (U.S. Navy Special Forces)
SOLIC	Special Operations, Low Intensity Combat
SOUTHCOM	Southern Command
SSI	Strategic Studies Institute
TF	Task Force
UB	Utility Boat
U.N.	United Nations
USCG	United States Coast Guard
USCINCSOC	United States, Commander in Chief, Special Operations Command
USMC	United States Marine Corps
USN	United States Navy
USS	United States Ship
VNN	Vietnamese Navy
WPB	Patrol Craft, Large, or cutter
WHEC	High Endurance Cutter

CHAPTER ONE

INTRODUCTION, BACKGROUND, AND DEFINITION OF TOPIC

Introduction

This study examines the U.S. Navy's current and proposed force structure for the conduct of joint littoral warfare, specifically regarding the size and capability of the coastal and riverine forces in the Navy. This research will answer the question, "Does the U.S. Navy need to enlarge her coastal and riverine force capabilities to effectively meet the joint, combined, and unilateral missions of today and tomorrow?" In the past three years the Navy has published two capstone documents, white papers, which state the Navy's vision for the foreseeable future. These white papers are titled "From the Sea Preparing the Naval Service for the 21st Century" and "Forward ...From the Sea," and strongly endorse a post-Cold War vision of changing the Navy from a force dedicated to blue water operations to a force focused on the littoral.

The impetus for conducting this research is to answer the Naval Doctrine Command's (NDC's) question concerning the adequacy of the U.S. Navy's brown water force structure.¹ This research also contributes to answering two of Lieutenant Commander David J. Spangler's recommended areas for further study found in his master's thesis. The topics are "Riverine force structure requirements and resourcing," and "Current regions of interest to the United States that have a riverine type environment."²

With the demise of the Soviet Union, the United States no longer confronts a rival superpower. Gone are the days when the Navy prepared to fend off regimental raids of Backfire bombers on the high seas and the Army and Air Force, along with NATO, prepared to fight Warsaw Pact forces across Central Europe. As described in the current "National Security Strategy" today the U.S. armed forces must be prepared to win two nearly simultaneous major regional conflicts (MRC's), and to conduct special operations, low intensity conflict (SOLIC), and operations other than war (OOTW).³ While the

traditional roles of the carrier battle groups (CVBG), amphibious ready groups (ARG), and submarines remain significant, the new focus of national and naval strategy warrants a closer look at the brown water navy which could become a major portion of the naval contribution to any future MRC, SOLIC, or OOTW.

This study is in five chapters. The first introduces the reader to the research question and provides background information on the subject. The second reviews the available literature defining this topic. There is significant written research material on the U.S. Navy's brown water history in Vietnam, but literature is sparse concerning today's riverine and coastal forces. The third discusses research methodology, which depends on the analysis of the brown water force structure (U.S. and allied) presented in certain historical examples and how well the force structure achieved mission requirements. The fourth is an analysis of the evidence and how it relates to the research question. The final chapter contains conclusions and recommendations.

Primary and Subordinate Research Questions

To help set the stage in understanding the research question, "Does the U.S. Navy need to enlarge her coastal and riverine force capabilities to effectively meet the joint, combined, and unilateral missions of today and tomorrow?" the question will be divided into its key parts. The parts will then be defined, and problems encountered in defining the question will be broached.

To begin, the question "What is the coastal and riverine area, and what is this area's relationship with the littoral discussed in the Navy's white papers?" will be answered. Naval Warfare Publication (NWP) 13A/Fleet Marine Force Manual 7-5, Doctrine for Navy/Marine Corps Joint Riverine Operations defines the riverine area as:

The riverine area is an inland, coastal, or delta area comprising both land and water, characterized by limited land lines of communication (LOCs), with extensive water surface and/or inland waterways that provide natural routes for surface transportation and communications.⁴

For the purposes of this paper the riverine and delta area will be bodies of water and the land adjacent to these bodies, where a boat with three feet of draft can operate and the coastal area will be water area extending 25 nautical miles from land. In each of the preceding areas the "land" encompasses

the area that the boat, system on the boat, and people on the boat can affect in some manner. The reader will note that Navy doctrine uses the term riverine to include riverine, delta, and coastal areas. How does this term relate to the idea of the littoral? The term littoral means different things to different people. Navy Doctrine Publication (NDP) 1 defines the littoral as "Those regions relating to or existing on a shore or coastal region, within direct control of and vulnerable to the striking power of naval expeditionary forces."⁵ While NDP 2 defines the littoral as "1. Seaward: Area from the shore to open ocean that must be controlled to support operations; 2. Landward: Area inland from the shore that can be supported and defended directly from the sea."⁶ The definition provided in "...From the Sea" varies slightly, but significantly, from the definition provided in NDP 2, "Seaward: The area from the open ocean to the shore which must be controlled to support operations *ashore*. Landward: The area inland from shore that can be supported and defended directly from the sea."⁷ To answer this question, the riverine area is essentially a significant part of the term littoral. This is important, because it indicates that the naval service intends to be able to operate in and control this area.

For practical purposes the littoral will be defined as a distance of 250 NM to sea and inland from the shoreline. Five-hundred NM approximates the operating radius of a CVBG aircraft strike, and the approximate effective distance of a Tomahawk missile attack. It needs to be noted that brown water craft can operate outside of this littoral area. Riverine craft can operate on any river or lake, no matter how far inland, provided the water exceeds the draft of the boat. However, riverine craft can operate far inland, but would not expect to receive regular logistical support and protection from a CVBG or ARG.

The next part of the question addresses the joint, combined, and unilateral missions of today and tomorrow. Just what are the missions for the riverine force? Chapter four analyzes the missions in detail. It will be instructive at this point to justify the strategic nature of the brown water force by tracing elements of the "National Security Strategy" through the "National Military Strategy," the Navy's white papers through to NWP 13A, the Navy's doctrine for riverine operations.

During February 1995, the "National Security Strategy" was published. This document focuses the efforts of the government on following those policies which President Clinton thinks are best for America. The central goals of this document are:

- (1) To sustain our security with military forces which are ready to fight.
- (2) To bolster America's economic revitalization. and
- (3) To promote democracy abroad.⁸

These themes are further expounded on in chapter two of the "National Security Strategy." It is worthwhile to read the pertinent portions of these.

Enhancing Our Security. Taking account of the realities of the post-Cold War era and the new threats, a military capability appropriately sized and postured to meet the diverse needs of our strategy, including the ability, in concert with our regional allies, to win two nearly simultaneous major regional conflicts. . . .

Promoting Prosperity at Home. A vigorous and integrated economic policy designed to stimulate global environmentally sound economic growth and free trade and to press for open and equal access to foreign markets.

Promoting Democracy. A framework of democratic enlargement that increases our security by protecting, consolidating and enlarging the community of free market democracies. Our efforts focus on strengthening democratic processes in key emerging democratic states.⁹

Every action which is taken by the federal government, and especially the armed forces should contribute to realizing these ends.

The "National Security Strategy" continues to describe the ways in which to achieve these ends.

Under heading of "Enhancing Our Security" are the following ways (only those having a bearing on this thesis are listed):

Deterring and Defeating Aggression in Major Regional Conflicts. Our forces must be able to help offset the military power of regional states with interests opposed to those of the United States and its allies. To do this we must be able to credibly deter and defeat aggression, by projecting and sustaining U.S. power in more than one region if necessary.

Providing a Credible Overseas Presence. U.S. forces must also be forward deployed or stationed in key overseas regions in peacetime to deter aggression and advance U.S. strategic interests. Such overseas presence demonstrates our commitment to our allies and friends, underwrites regional stability, gains us familiarity with overseas operating environments, promotes combined training among the forces of friendly countries and provides timely initial response capabilities.

Contributing to Multilateral Peace Operations. When our interests call for it, the United States must also be prepared to participate in multilateral efforts to resolve regional conflicts and bolster new

democratic governments. Thus, our forces must be ready to participate in peacekeeping, peace enforcement and other operations in support of these objectives.

Supporting Counterterrorism Efforts and Other National Security Objectives. A number of other tasks remain that U.S. forces have typically carried out with both general purpose and specialized units. These missions include: counterterrorism and punitive attacks, noncombatant evacuation, counternarcotics operations, special forces assistance to nations and humanitarian and disaster relief.¹⁰

The end of the heading "Promoting Prosperity at Home" has six means, often with subordinate means. Two of these means have particular impact concerning possible military involvement, and therefore naval and brown water force involvement. These are:

Providing for Energy Security: The United States depends on oil for more than 40 percent of its primary energy needs. Roughly 45 percent of our oil needs are met with imports, and a large share of these imports comes from the Persian Gulf area... Appropriate economic responses can substantially mitigate the balance of payments and inflationary impact of an oil shock; appropriate foreign policy responses to events such as Iraq's invasion of Kuwait can limit the magnitude of the crises... Conversation measures notwithstanding, the U.S. has a vital interest in unrestricted access to this critical resource.

Promote Sustainable Development Abroad: Broad-based economic development not only improves the prospects for democratic development in developing countries, but also expands the demands for U.S. exports. Economic growth abroad can alleviate pressure on the environment, reduce the attraction of illegal narcotics trade and improve the health and economic prosperity of global populations.¹¹

The heading "Promoting Democracy" does not have any specific means associated with it. However, portions of the pages explaining this end to the reader of the "National Security Strategy" are important. They are:

All of America's strategic interests -- from promoting prosperity at home to checking global threats abroad before they threaten our territory -- are served by enlarging the community of democratic and free market nations. Thus, working with new democratic states to help preserve them as democracies committed to free markets and respect for human rights.

... we must target our effort to assist states that affect our strategic interests, such as those with ... the potential to generate refugee flows into our own nation. ...

We must be willing to take immediate public positions to help staunch democratic reversals, as we have in Haiti.¹²

The country case studies developed in chapter four must be based on missions which support the ends and ways described above in the "National Security Strategy." If they do not then the final

determination on whether or not the U.S. has sufficient brown water forces to meet her littoral strategies is moot.

The recognized means for a nation to achieve its goals are through the following elements of national power: diplomatic, informational, military, and economic. The "National Military Strategy" must fully address the military element of national power in support of the "National Security Strategy." By the nature of the way elements of power intertwine, the military may be used to accomplish the goals of a different element of national power. An example of this is an embargo (enforced by military assets) aimed at causing economic pain to the recipient nation.

The "National Military Strategy" identifies two national military objectives, promoting stability and thwarting aggression. These two objectives are supported by three components of strategy--peacetime engagement, deterrence and conflict prevention, and fighting and winning our nation's wars--and two strategic concepts--overseas presence and power projection. The two objectives and supporting components are designed to counter four principal military dangers of: regional instability; the proliferation of weapons of mass destruction; transnational dangers, such as drug trafficking and terrorism; and the dangers to democracy and reform in the former Soviet Union, Eastern Europe, and elsewhere.¹³ The following is a quoted list of the military missions (means) from the "National Military Strategy":

1. Peacetime engagement
 - a. Military-to-military contacts
 - b. Nation assistance
 - c. Security assistance
 - d. Humanitarian assistance
 - e. Counterdrug and counterterrorism
 - f. Peacekeeping
2. Deterrence and conflict prevention
 - a. Nuclear deterrence

- b. Regional alliances
 - c. Crises response
 - d. Arms control
 - e. Confidence-building measures
 - f. Noncombatant evacuation operations
 - g. Sanctions enforcement
 - h. Peace enforcement
3. Fight and win
- a. Clear objectives - decisive force
 - b. Wartime power projection
 - c. Fight combined and joint
 - d. Win the information war
 - e. Counter weapons of mass destruction
 - f. Two major regional contingency focus
 - g. Force generation
 - h. Win the peace¹⁴

It is relatively easy to read how the "National Military Strategy" echoes the "National Security Strategy," only the "National Military Strategy" becomes much more specific on the military-related national ends.

The direction that the "National Security Strategy" and "National Military Strategy" provides to the Navy is clear. The Navy should perform missions in consonance with the strategies outlined in these two documents. It would be instructive to identify strategies in capstone naval publications which fit, with more detail appropriate for the maritime service, into the "National Military Strategy," as the "National Military Strategy" fits into the "National Security Strategy." However, this is not the case. The two publications which one would logically refer to for the Navy's strategies are "Forward ...From the Sea" and NDP 1, Naval Warfare. In "Forward ...From the Sea" the conclusion ties itself to the "National Security Strategy" through the following quote: "Naval forces have five fundamental and enduring roles

in support of the "National Security Strategy": projection of power from sea to land, sea control and maritime supremacy, strategic deterrence, strategic sealift, and forward naval presence. We [U.S. Navy] will continue to carry out these roles to protect vital U.S. global interests, citizens, allies and friends, wherever they may be at risk."¹⁵ The cover letter for "Forward ...From the Sea," signed by the secretary of the Navy, Chief of Naval Operations, and Commandant of the Marine Corps, reiterates the change in focus found in "From the Sea" of Naval Service strategic concepts from the blue water battle to power projection in the littoral, and that "Forward ...From the Sea" "amplifies the scope of our strategic concept while confirming the course and speed for the Naval Service . . ."¹⁶ "Forward ...From the Sea" addresses how the traditional components of naval power, aircraft carrier battle groups, and amphibious readiness groups with their embarked, marines will support the littoral strategy. Several paragraphs continue to stress the relevance of ballistic missile submarines. However, special warfare in general and coastal/riverine forces in particular are not mentioned. Therefore it will not be possible to judge any analysis conducted in chapter four as being relevant to a naval strategy, due to the generic nature of "Forward ...From the Sea." NDP 1 does little to bring clarity to the picture of the Navy's strategic concepts. What NDP 1 should do is written in its introduction. That is: "Naval doctrine forms a bridge between the naval component of our nation's military strategy and our tactics techniques and procedures, such as those found in our Naval Warfare Publications and Fleet Marine Force Manuals."¹⁷ NDP 1 is much akin to the Army's Field Manual 100-5 and describes naval operational art. Its one paragraph on special warfare forces, which the Navy's brown water forces belong to, reads: "Special Warfare Forces. These forces, capable of operating clandestinely, are task organized to provide advance-force operations, hydrographic and near-shore reconnaissance in advance of a landing, direct action missions, combat search-and rescue missions, and the ability to degrade enemy lines of communications."¹⁸ The analysis of the evidence in chapter four relies on the "National Security Strategy" and "National Military Strategy" to ensure relevance. The impact of "Forward ...From the Sea" and NDP 1 have in determining Naval strategy is discussed in chapter five.

While understanding the sources of national strategy and its impact on coastal and riverine operations is important, it will also be instructive to read the tactical missions assigned to these forces. The following is a brief overview of what NWP 13A details as the missions of the riverine force. NWP 13A describes the following for riverine operations:

1. Purpose:

- a. Establish and maintain control of riverine lines of communications.
- b. Deny, by interdiction, barrier, or surveillance operations, use of riverine LOCs by hostile forces.
- c. Locate and destroy hostile forces, bases, and supplies contained within a riverine area.

2. Scope:

- a. Intelligence collection.
- b. Planning.
- c. Embarkation of troops and equipment.
- d. Patrol/barrier and interdiction and surveillance operations.
- e. Riverine assault operations.
- f. Naval riverine close fire support.
- g. Close air support.
- h. Naval gunfire of firebase support.
- i. Repositioning of forces.
- j. Resupply of the riverine force until termination of the campaign.
- k. PSYOP/civic action programs.
- l. Re-embarkation/withdrawal.

Types of riverine operations:

1. Assault:

- a. Establish control of water lines of a geographical area which includes water lines of communication.
- b. Establish control of land areas and/or population and resources.
- c. Locate and destroy hostile forces and supplies.
- d. Establish and secure an area for a combat support base, as required.

2. Surveillance, interdiction and security:

- a. Protect friendly lines of communication
- b. Deny hostile forces the use of waterways.
- c. Collect intelligence information
- d. Perform security missions.
- e. Enforce population and resource control.¹⁹

What from this extensive list are brown water craft and their crews doing today? Naval forces recently participated in the blockade of Haiti, interdicting seaborne smuggled goods (with varying success) and conducting foreign internal defense training (FID) in the Southern Command area of responsibility

(AOR)²⁰ and, to a lesser extent, in the Southeast Asia region of the Pacific Command AOR. The FIDs address anti-drug and anti-piracy missions. On a routine basis coastal and riverine craft are forward deployed as parts of Amphibious Readiness Groups, detachments to the Caribbean for conducting counter-narcotic operations and conducting SEAL and fleet training. So the above list provides a partial answer to what the missions are for the brown water force. However, the list is not complete and does not address what the coastal/riverine craft of today may expect to be tasked to accomplish in the future. These potential tasks will be discussed in chapter four and the scope of the force needed to accomplish these tasks is addressed in chapter five.

There are several subordinate questions which must be answered to develop a reasonable solution to the primary question. These are:

1. Are there significant areas of the world where planners would expect to employ coastal/riverine force? Chapter four identifies countries and regions of the world where brown water forces may be deployed.
2. What missions will be appropriate for the brown water navy? How effective is the present brown water force structure? The types of missions described in NWP 13A are listed, and here those which are relevant and significant are selected. Also added were new missions which are being conducted or could be conducted.
3. What operations have been previously conducted by brown water forces and are the lessons from these operations relevant today? Lessons learned from Vietnam, specifically from large scale brown water operations such as Market Time and Game Warden, were analyzed in chapter four. What size/type of brown water force should we have?

After analyzing the missions for the coastal/riverine force, a recommended force structure was developed which can meet possible future requirements. In determining this force size the brown water craft which the Army, Marine Corps and Coast Guard operate was analyzed to see if these vessels can fill any missions. The current material condition of our brown water forces was reviewed to see if the craft need to be replaced.

Limitations and Delimitations

Limitations: This paper is unclassified. Much of the current employment of brown water craft conducting anti-drug operations is classified. However, the importance of the mission and discussion of the force size can be done in an unclassified manner.

There is very little current literature available on this subject. There are efforts by individuals at the Naval Special Warfare Command (NSWC) and Office of the Chief of Naval Operations (N513K) to address this subject. Indeed this lack of material probably led to the NDC request that this study be conducted. This resulted in a great amount of individual analysis in determining the proper force structure for the brown water force.

The author developed his own arithmetic formulas based on brown water operations in Vietnam to determine if today's force was adequate to meet expected missions. The author is not a mathematician. This analysis was further complicated by conflicting statistics from different sources. A "best effort" was made to reach logical conclusions.

Delimitations: This paper does not discuss the U.S. Navy's use of guided missile patrol boats, mine hunting and mine countermeasure ships, or salvage ships. While these vessels do operate regularly in the brown water region, their missions are specific and do not fit into the missions addressed by this paper. However, the use of brown water forces to counter these types of vessels and the ability of coastal/riverine craft to be used as improvised mine sweepers is considered.

The ability of the coastal/riverine craft to replace more traditional naval platforms (ships, submarines, and aircraft) in their ability to perform traditional missions was not analyzed.

No recommendation was made to increase or decrease another service's brown water force size. This research is based on the assumption that changes to the brown water force structure will occur within the Navy vice other services. The research and conclusions regarding force structure requirements could apply equally to any service.

¹Department of the Navy, "Topics for Naval Doctrine Research Projects" (Norfolk, VA: Naval Doctrine Command, 4 May 1995), 1.

²David J. Spangler, "What lessons can be drawn from the U.S. riverine operations during the Vietnam War as the U.S. Navy moves into the twenty-first century?" (Master's thesis, U.S. Army Command and General Staff College, 1995), 141.

³The White House, "A National Security Strategy of Engagement and Enlargement." February 1995, 7 and 11.

⁴Department of the Navy, NWP 13A: Doctrine for Navy/Marine Corps Joint Riverine Operations. (Washington, DC: Office of the Chief of Naval Operations, April 1987), 29. NWP 13A has been canceled. A new doctrine manual will be published after Joint Publication 3-06 is published. NWP 13A is used for a reference, since it is the most recent doctrine published by the Navy.

⁵Department of the Navy, NDP 1: Naval Warfare (Washington, DC: Office of the Chief of Naval Operations, 28 March 1994), 73.

⁶Department of the Navy, NDP 2: Naval Intelligence (Washington, DC: Office of the Chief of Naval Operations, 30 September 1994), 65.

⁷Department of the Navy, "From the Sea: Preparing the Naval Service for the 21st Century" (Washington, DC: Office of the Chief of Naval Operations, 29 September 1992), 2.

⁸"National Security Strategy," i.

⁹*Ibid.*, 7.

¹⁰*Ibid.*, 8-9.

¹¹*Ibid.*, 21.

¹²*Ibid.*, 22-3.

¹³"National Military Strategy," 1.

¹⁴*Ibid.*, 4.

¹⁵"Forward ...From the Sea," 10.

¹⁶*Ibid.*, initial page, unnumbered.

¹⁷NDP 1, ii

¹⁸*Ibid.*, 66.

¹⁹NWP 13A, 1-3

²⁰ Capt. (Sel) Schultz, Robert USN, Telephone conversation, 14 October 1995. Capt. (Sel) Schultz holds the Naval Special Warfare chair at the Naval War College, and previously commanded Naval Special Warfare Unit EIGHT located in Rodman, Panama.

CHAPTER TWO

REVIEW OF LITERATURE

The available literature concerning current employment of coastal/riverine forces in the littoral environment is sparse. There are the two white papers, "From the Sea Preparing the Naval Service for the 21st Century" (From the Sea), and "Forward ...From the Sea." The recently published Naval Warfare (NDP 1) and the other NDPs along with the white papers serve to give the reader a solid understanding of where the Navy's leadership wants to take the Navy into the twenty-first century. Of particular interest to this study is the stated goal of changing the Navy's operational focus from blue water conflict to littoral conflict.

Books written about the Vietnam War provide extremely valuable data for exploring that conflict and predicting brown water force requirements for future conflicts. This is the only recent conflict in which the brown water mission has been analyzed in some depth. From this conflict comes data on numbers of U.S. and allied craft in operation at different points of the war, numbers of maritime searches conducted, the results of the operations in terms of enemy killed or wounded, material destroyed or seized, and the amount of coastline and inland waterways which were patrolled. For this thesis the most important book on the coastal/riverine involvement in Vietnam is A Short History of the United States Navy and the Southeast Asian Conflict 1950-1975 by Edward J. Marolda and G. Wesley Pryce III. This book is an official Department of the Navy document, published by the Naval Historical Center, and, as such, the details provided therein are considered to be accurate. Three other good books detailing the Navy's brown water operations during the Vietnam War are Brown Water, Black Berets by Lieutenant Commander Thomas Cutler, From the Rivers to the Seas by Commander Richard Schreadley (retired) and Vietnam the Naval Story by Frank Uhlig. These books will give the reader a good anecdotal

background on the size of the coastal/riverine forces, operations conducted, and the success or challenges experienced by these forces during this era.

There is very little literature on the current use of brown water forces to support the Navy's littoral strategy. The articles most prevalent in naval literature concerning littoral operations deal with the role of traditional naval forces, such as submarines, aircraft carrier air wings, and surface ships, and how these forces might operate in the littoral.

There is no current Navy doctrine for the conduct of brown water warfare. NWP 13 (rev A), doctrine for Navy/Marine Corps Joint Riverine Operations, was canceled. The next naval warfare publication on the subject of coastal/riverine operations will not be published until the Joint Publication (JP) 3-06, is published on the same topic.

There are few unclassified written documents on brown water operations that have occurred in the past ten years. Traditional news magazines, newspapers, and articles in professional journals do provide some anecdotal references to brown water operations, but these operations are subsumed in the bigger story of the conflict in whole. The author attributes this to the fact that brown water operations are either not exciting to read about, such as harbor patrol, or are classified and thus not available for open writing. Of particular note is the lack of information concerning brown water operations in the Navy Lessons Learned System (NLLS) data base.

The Economist Intelligence Unit's Country Profile series and the Central Intelligence Agency's home page on the World Wide Web (Internet) proved to be valuable for obtaining data on countries around the world.

The best source of information on the current status of coastal/riverine forces is found by talking with subject matter experts. Conversations with officials at special boat units and the chain of command up to the Chief of Naval Operations Executive Committee are the best way to gather current information on the status of the brown water forces. This is more fully discussed in the next chapter.

CHAPTER THREE

RESEARCH METHODS

The amount of written material concerning the current status of riverine/coastal forces and their impact on littoral warfare is sparse. However, research into this subject can reveal material of importance.

To begin with, there are several books and official histories on the Vietnam War dedicated to, or containing chapters on, brown water warfare in the Vietnam War. The Vietnam War saw extensive use of brown water forces which were generally successful in performing assigned missions. Analyzing this data provides a theoretical beginning for a possible force structure for today's armed forces. Therefore, what the proper size of a brown water force should be can be derived from the data provided in documents on the Vietnam War. What the officials in decision-making positions within the armed forces think the current force structure size should be today is a more difficult number to determine.

After conducting a review of the limited amount of literature on this subject, the author thought that interviewing subject matter experts would be the most effective way to research a new topic as this. The first telephone call made was to the subject point of contact at Naval Doctrine Command, the Navy's sponsor of this research topic. This telephone call confirmed the limited amount of written material available on the topic of the brown water navy and its role in littoral warfare.¹ However, guidance was provided as to whom in the Navy would be appropriate subject matter experts.

The offices which held the most promise for help and which would help other research in fields related to this subject were: the Chief of Naval Operations (CNO) Executive Committee, the Naval Special Warfare (NSW) chair at the Naval War College, OpNav code N35, Naval Doctrine Command (NDC) Center for Naval Analysis (CNA), staff of United States Commander in Chief Special Operations Command (USCINCSOC), the operations and maintenance officers at the many special boat units (SBUs) and special boat squadrons (SBSs), president, Board of Inspection and Survey, Surface Warfare

Development Group, and the Naval Special Warfare Command (NSWC). The research for this paper was strengthened through telephone conversations with these commands and receiving informal papers, such as command presentations from the sea commands.

Normally, for a service to determine the needed size of a force structure for any weapon system, a request from the cognizant Commander in Chief (CINC), or responsible subordinate command, is sent to all of the theater CINCs requesting their required forces to meet anticipated needs. The CINC's requirements are then either funded, and the resulting force structure should be able to meet the needs of the theater, or not funded with the associated risks being knowledgeably accepted. To determine the adequacy of the force structure an analysis of the current weapon systems and projected acquisitions is balanced against the CINC's needs to arrive at a determination of the adequacy of the force structure.

An attempt to gather data concerning the process described in the preceding paragraph was attempted, only to find out that Commander, NSWC, the command subordinate to CINCSOC and responsible for the brown water force structure, has had a request to the theater CINCs for their brown water force structure requirements go without a response for two years.² Captain Richard McKay, the plans and policy officer (N5) at NAVSPECWARCOM, expressed the response to this question as being "intellectually under funded."³ The answer to the question, "What are the warfighting CINC's brown water requirements?" still has not been answered.

The methodology for research then turned from receiving information from the top echelons of the Navy to becoming an analysis of historical examples and applying them to possible scenarios today which may require a brown water force. The brown water operations during the Vietnam War, Operation Earnest Will, Desert Shield and Desert Storm, the Haitian embargo and refugee problem, and current Mobile Training Team deployment to SOUTHCOM were all analyzed. Then probable scenarios requiring the use of U.S. (and allied) coastal and/or riverine forces were analyzed. These scenarios are: conflict on the Korean peninsula, active Iranian support to rebellions in the Arab Persian Gulf countries, active use of U.S. forces to interdict cocaine production in Colombia, and future surges in refugees from Haiti and/or Cuba to U.S. shores. The aforementioned sites of conflict were chosen for three reasons. First, they all

have significant littoral areas where brown water craft can operate. Second, they are all deemed to be strategically significant in the National Security Strategy, National Military Strategy, and/or are reported as realistic problems which will confront the nation within the next decade by the Department of the Army's Strategic Studies Institute. And, trouble in all of these areas has been recently covered in news periodicals.

To develop force numbers, the Vietnam War was analyzed in detail. There was two reasons for this special attention. As mentioned in chapter two, there is a significant amount of written material detailing the numbers of craft in service and the effectiveness of these craft. The second reason is that during the conflict, significant coastal interdiction, inland waterway control, and riverine assault operations were conducted, with craft which are comparable with those in use today. Brown water operations have not been repeated on the scale of the Vietnam War by any nation since the conclusion of this war. The number of craft used in coastal operations was compared to the density of the seaborne traffic and area of water in which the allied craft were required to patrol. These comparisons will yield numbers of craft required to perform similar missions today in defense of a coast of a given length, or to perform searches of coastal waters with a given density of craft operating in the waters. The number of craft used in waterway control was similarly analyzed against the length of river/canal patrolled and number of craft searched and produced a figure useful to determine the number of craft needed today to patrol a given length of river or to search a given number of craft upon the river today.

The scenarios described above in which the U.S. may want to use a sizable brown water force were then analyzed in chapter five using the figures for required numbers of craft developed from the analysis of the numbers available in the Vietnam War to develop the numbers of craft required to successfully execute the mission today. These numbers were then extrapolated against what would happen if two or more of these scenarios happened at once.

To collect data on the material condition of the boats used in the brown water force, calls were made to the Pacific and Atlantic Boards of Inspection and Survey. These commands were not responsible for tracking the material condition of boats (as opposed to ships) and referred to the staff of the president

of the Board of Inspection and Survey for the data. Again this information was sketchy, and this data had to be gotten from the SBUs.

Throughout the research, the staff at the Center for Naval Analysis proved to be most helpful. They would electronically mail the author data on new articles of possible use. Also the staff officers at OpNav N35 were very supportive and interested in the product. It is recommended that readers conducting other research into naval strategic topics identify the cognizant code at OpNav for similar support.

¹Maj. Steve Tripp, U.S. Marine Corps, and Cdr. Judge Conoff of NDC, interview by author, 14 October 1995, Fort Leavenworth, KS.

²Capt. Richard McKay, U.S. Navy, of Naval Special Warfare Command, interview by author, 15 October 1995, Fort Leavenworth, KS.

³Ibid.

CHAPTER FOUR

ANALYSIS OF AVAILABLE EVIDENCE

The data available to answer the questions posed in Chapter One comes from an analysis of recent U.S. brown water operations, current force structure, and projected force structure. From this data the success or failure of brown water operations and the execution of missions was reviewed. From this analysis the following questions were developed. Did the brown water Navy effectively conduct the missions with the force structure available? Would a greater force structure have contributed to greater success? Are these historical examples valid for drawing conclusions about today's brown water force structure?

The historical examples from recent history include the Vietnam War, Operation Earnest Will, the South West Asia conflict, the blockade of Haiti, and the ongoing counter-drug effort in South America. Each of these examples is sufficiently different in the nature of the operations conducted to be of value to study. Also in chapter five where recommendations as to the proper force structure are provided, conclusions to the adequacy of the size of the U.S. brown water capability were judged not only on the ability to perform in a conflict described above, but in combinations. The Vietnam War, while fought more than twenty years ago, is still a valuable source of data. The U.S. and allied brown water forces consisted of thousands of boats and craft and were committed to the conflict for long periods of time. The extent of interdiction of waterborne supplies and riverine combat has not been equaled since and thus provides data on what the force structure should be if the U.S. finds herself in a similar conflict.

Operation Earnest Will provides the example of the force structure needed to protect neutral shipping from attack by belligerents. While U.S. forces did not desire conflict with either Iranian or Iraqi

forces in the Persian Gulf, they felt obliged to assist their allies and to ensure the flow of petroleum products, a strategic resource.

The Gulf War presents a conflict in which the enemy had very a short coastline, but was vulnerable to attack from the sea. It also provides an example where once the U.S. and coalition forces chose to start the ground campaign, many maritime targets, specifically oil platforms, needed to be neutralized at once.

The blockade of Haiti provides a sound example of the requirements for brown water operations to enforce an embargo. While the interdiction of deep draft shipping was effectively conducted with U.S. and allied ships, the target of the embargo required that the flow of petroleum and other goods be completely blocked to bring pressure on the illegal regime of Lieutenant General Raoul Cedras, thus shallow draft boats also had to be interdicted to ensure the effectiveness of this blockade.

The final example is the on-going effort in South America to stem the flow of drugs. Navy and United States Marine Corps (USMC) brown water forces are training the armed forces of various South American countries in riverine warfare. The goal of this training is to enable the national forces to attack drug producers at the source of the drug production and to interdict drugs and other contraband. This example of reviewing the U.S. brown water training effort is important as controlling the drug problem is a U.S. national priority and likely to continue to be one.

Before proceeding with the analysis of the historical lessons provided by the above events, it is instructive to review what the U.S. brown water force structure is today. All of the Navy's coastal and riverine craft are controlled by the Naval Special Warfare Command at Coronado, California. The command operating these patrol craft on the West Coast is Special Boat Squadron One (SBS 1), and on the East Coast SBS 2. SBS 1 has two subordinate Special Boat Units 11 and 12 which have the following craft:

SBU 11 (Reserve, Vallejo, CA)

10 X 36 foot Mini Armored Troop Carriers (MATC)

10 X 31 foot River Patrol Boat (PBR)

4 X 20 foot Utility Boat (UB)

SBU 12 (Active, Coronado, CA)

8 X 65 foot Patrol Boat (PB) to be sold upon the delivery of the new Mark V

20 X 24 foot Rigid Inflatable Boat (RIB)

8 X 30 foot RIB

2 X Mark V Patrol Boat (Mk V) expected total inventory will be 10.

4 X 170 Foot Coast Patrol Boat (PC) All PCs are subordinate to the SBS.

Number of craft: 66 craft¹

On the East coast SBS 2 has three subordinate SBUs, 20, 22, 26.

SBU 20 (Active, Little Creek, VA)

2 X Mk V expected total inventory will be 16

12 X 24 foot RIB

12 X 30 Foot RIB

SBU 22 (Reserve, New Orleans, LA)

3 X MATC

12 X PBR

SBU 26 (Active, Rodman, Panama)

2 X Patrol Boat (Mk III)

8 X PBR

9 X PC

Number of craft: 60 craft²

subtotal: 126 craft

The USMC has 24 PBRs.

The US Coast Guard has 73 patrol craft large (WPB).³

Combined total: 223 craft

The Brown Water Navy in Vietnam

from 1961 - 1973

The Vietnam conflict provides a significant model for the force structure requirements of today's brown water force in a littoral intensive conflict. The brown water forces of the U.S. Navy, U.S. Army, U.S. Coast Guard, and Vietnamese Navy (VNN) were all used in the littoral environment. The conduct of the littoral battle can be divided into two distinct areas. The first was the effort to prevent enemy supplies from being shipped into the Republic of Vietnam, which was a country with 1,200 miles of coast line.⁴ The second was to ensure control of the inland waterways to allow friendly water traffic to flow freely, use and deny the enemy use of these avenues of transportation, and to support combat operations against the enemy.

This section of the paper details the chronological growth of brown water forces in Vietnam, the reason for the growth, and the evaluated success achieved in interdicting contraband enroute to the communist forces, controlling the inland waterways, and combat with the enemy. The history of U.S. Navy involvement in brown water operations dates from 1954 to 1959 with the naval component of the Military Assistance Advisory Group (MAAG), which was tasked to assist South Vietnam in building a maritime force.⁵ The South Vietnamese Navy grew from a force of 1,500 men and 24 ships and landing craft, to a force of 5,000 men and 114 ships and craft during this period. The American naval advisors

concentrated on teaching the Vietnamese maintenance and tactics to support harbor defense, mine laying and mine sweeping, and support to the army with transportation, escort, and maritime patrol.⁶

In 1959 the North Vietnamese initiated their campaign to bring down the government of South Vietnam through subversion, guerrilla attacks, and direct armed action.⁷ The brown water presence in South Vietnam grew after General Maxwell Taylor, President Kennedy's chief military advisor, visited the region in October 1961 and reported his findings to the president. President Kennedy then responded to the communist offensive actions by increasing military aid and the numbers of advisors in-country, adopting special counterinsurgency measures, and deploying American support forces to Southeast Asia.⁸ These actions brought the U.S. naval advisor strength to 235 under the command of the Naval Advisory Group (NAG) which was subordinate to the successor to the MAAG, the Military Assistance Command, Vietnam (MACV).⁹ Another significant development was that NAG members could accompany their South Vietnamese trainees on combat patrols. This training was important for both sides, as Americans were learning valuable lessons on how to conduct brown water warfare, and the Vietnamese were training personnel to man their fleet which had grown to 44 seagoing ships and more than 200 landing craft, patrol boats, and other vessels.¹⁰

By 1964 the VNN, our ally, had significant forces available for coastal and riverine operations. For coastal operations it had 12 motor gunboats (PGM), five escorts (PCE), three medium landing ships (LSM), three tank landing ships (LST), and 12 mine sweeping launches. These vessels were expected to patrol the 1,200 mile coast, conduct mine sweeping, antisubmarine warfare (ASW), transportation, and gunfire support for troops and amphibious landings. To augment the offshore patrol capability, a fleet of 600 junks was commissioned with U.S. funds, specifically to interdict infiltrating communists from North Vietnam. These forces operated in 24 different coastal divisions.¹¹

For riverine operations the VNN had the following force structure. Six river assault groups (RAG) were formed in 250 man groups and 19 vessels, with two stationed at Saigon and the others at My Tho, Vinh Long, Can Tho, and Long Xuyen. The VNN also had two groups of boats designated as river transport groups to protect the flow of supplies to Saigon and to support the Army.¹²

While the above brown water forces seem to be significant in numbers, the effectiveness of the VNN in conducting their missions was assessed as not being very successful. The reasons for this were the VNN officer corps suffered divisive political splits which kept the officers from working well together, an underpaid and overworked enlisted force which lacked motivation and suffered from desertion, and significant materiel problems in keeping the boats repaired and operational.¹³ This becomes significant in the final analysis as to whether or not sufficient vessels had been provided by the coalition (USN/VNN) to accomplish assigned missions.

By March 1965 the situation in South Vietnam had worsened, and the government and armed forces of South Vietnam were on the verge of collapse. This led the Johnson administration to conclude that the South needed an American military shield to provide the breathing space to rebuild the country. The strategy was to make North Vietnamese aggression as expensive as possible.¹⁴ According to Marolda and Pryce, "this meant the use of the American Armed forces 1) to interdict the infiltration into the South of enemy supplies and reinforcements and 2) to destroy Viet Cong and North Vietnamese units in-country so that renewed nation building could take effect."¹⁵ Just prior to the administration's actions on February 16, 1965, a North Vietnamese trawler was caught unloading munitions in South Vietnam. Further analysis confirmed the communists had been involved in a heavy resupply effort by sea since 1963.¹⁶ This infiltration effort by the North Vietnamese prompted MACV, VNN and USN representatives to develop a coherent plan to establish an effective combined coastal patrol. This operation, designed to halt communist infiltration of the South by sea, became Operation Market Time.¹⁷ U.S. brown water forces in South Vietnam by the end of 1964 consisted of two motor torpedo boats rearmed with 40 millimeter and 20-milimeter guns, six Norwegian built PT boats of the "Nasty" class, and eight small fast patrol boats (PTF) which were primarily to support USN special forces (SEAL) raids along the rivers of the Mekong Delta.¹⁸

Market Time

The objective of Operation Market Time was to curtail the influx of communist arms and supplies into South Vietnam. This was to be accomplished in two ways: By preventing North Vietnamese

steel hulled 100-ton trawlers and ocean going junks from delivering their supplies into the south, and by interdicting Viet Cong junks and sampans in the South Vietnamese coastal region.¹⁹ Market Time forces were responsible for covering the 1,200 mile coastline of South Vietnam out to a distance of 40 miles at sea. This area was divided into eight districts (later nine), and used VNN, USN and USCG surface ship, brown water craft, aircraft and coastal radar sites to accomplish the mission. The patrol area was divided into four belts. The outermost belt was patrolled by aircraft, the next by blue water ships, then coastal craft, and finally, added in April 1966, harbor defense and patrol, the latter using the operation name Stable Door.²⁰ Market Time forces were also on call to perform such duties as serving as a blocking force for Army operations against an enemy near the shore or near the bank of a large river, transport troops, and evacuate casualties.²¹

To accomplish the missions of Market Time the U.S. brown water force was increased in size and capability. The backbone of the coastal force consisted of 84 swift boats, a 50-foot, 23-knot craft, armed with 50-caliber machine guns and one 81-milimeter mortar. To support operation Stable Door 16 large personnel landing craft, 25 Boston Whalers and eight 45-foot picket boats, all armed with 50-caliber machine guns were sent to South Vietnam. The U.S. Navy, due to her small regard for the capabilities of the VNN, requested USCG support and received 26 82-foot cutters (WPB). The demand for more craft increased and in 1967 fifteen USCG high endurance cutters (WHEC) were deployed to South Vietnam. Also in 1967 the first of the Asheville class patrol boats (PG) arrived. Usually one of these 165-foot vessels armed with 1 3-inch gun, 1 40-milimeter gun, 1 80 milimeter mortar, and 3 50-caliber machine guns was present in the Market Time area of responsibility from 1967 through 1968.²²

The accomplishments of Market Time from its inception through 30 December 1965, was limited. Of particular note was the VNN practice of patrolling during the day, but not at night, which allowed the Vietcong to exploit the dark.²³ No North Vietnamese trawlers were detected, and the sampan interdiction effort yielded little gain. On 31 December 1965, a trawler was detected heading for the Ca Mung Peninsula, however on discovery it turned around and headed north, aborting its mission. From January 1966 through July 1967 there were more successes with two North Vietnamese trawlers captured

and three more forced to abort their mission. During the same period more than 700,000 craft operating in the near coastal area were inspected, and those with contraband seized. From July 1967 through December 1967 no further trawler activity was detected. In February 1968, probably in support of the Tet Offensive, five trawlers were detected and three were sunk or captured and the other two returned to North Vietnamese waters.²⁴

As the American brown water force grew in Vietnam, so did the success. It is doubtful that every enemy junk was stopped, but enough were to call Operation Market Time a success. After the Tet Offensive Marolda stated that "the North Vietnamese probably were deterred from the use of seaborne infiltration as a major means of supply."²⁵ To actually determine the effectiveness of Market Time Cutler wrote to the current regime in Vietnam to ask for this data. His questions went unanswered.²⁶ Cutler also quotes from the lessons learned study conducted by the BDM Corporation for the U.S. Army.

Operation Market Time has been judged to have produced significant results and is credited with forcing the enemy to change logistic operations extensively. In early 1966, it was estimated that the enemy accomplished three-quarters of his resupply by infiltration from the sea. By the end of 1966 this was reduced to an estimated one-tenth of total resupply.²⁷ Or to put the Market Time success in words of the MACV Commander, General Westmoreland,

Market Time forces are a major element of my overall strategy, without which we would not succeed. Market Time forces have successfully blocked intrusions by the sea, forcing the enemy to use the long, tortuous Ho Chi Minh Trail, thus affecting significantly his ability to properly sustain his forces in the South.²⁸

Thus, while the interdiction effort was not perfect, the brown water forces in place accomplished the mission.

Operation Game Warden

During the Vietnam War, South Vietnam was a country with more than 3,000 miles of rivers and canals with a limited road and rail infrastructure. These conditions made waterborne transportation an integral part of the daily life of South Vietnam, and thus of vital interest. On 18 December 1965, the U.S.

Navy assured the allied forces that the control of these vital lines of communication would belong to friendly forces. Thus started Operation Game Warden. The U.S. forces deployed to support Game Warden consisted of River Patrol Squadron 5, which was divided into five river divisions placed throughout the country. Each division had two sections of 10 boats. The boats were PBRs armed with a twin mount 50-caliber machine gun, a 30-caliber machine gun, and a rapid fire grenade launcher.

The initial version of the PBR was the Mark I which suffered from fouled water jet engines and its fiber glass hull was easily damaged. Starting in December 1966 the Mark II version with an aluminum hull and engines which resisted fouling replaced the Mark Is. Instrumental to successful operations were the close integration of naval attack helicopters, SEALs, and mother ship support to the riverine craft.²⁹ On May 20, 1966, the U.S. Navy established Mine Squadron 11, Detachment ALPHA to counter Vietcong mining of the approaches to Saigon. The specific U.S. area was south of Nha Be, through the Rung Sat, and out to the sea.³⁰ This countermining effort was particularly important in view that 99 percent of the ammunition and fuel and 95 percent of the supplies, building materials, and vehicles arrived via sea.³¹ Detachment ALPHA operated twelve to thirteen 57-foot mine sweeping boats and six landing craft (LCM) converted to sweep mines (LCM(M)).³² These craft are included in this paper because they more closely fit the brown water mold. Instead of being equipped with sophisticated influence mine sweeping gear, they dragged chains with steel cutters welded to the chains behind them to snag a mine and cut its mooring.³³

The success of Game Warden was judged to be limited.³⁴ The missions assigned to the two-boat patrols were to check the cargo and identification papers aboard junks and sampans, support SEALs with transportation and gunfire, set up ambushes at suspected enemy crossing sites, escort friendly traffic along the waterways, and enforce curfew. With only 140 craft that rose to 250 by 1968 and thousands of miles of inland water to patrol, only the major waterways received significant attention.³⁵ The enemy was then able to redirect his traffic around the waterways which were known to be patrolled. Despite the limited success, Operation Game Warden still had some notable achievements. As 1967 was the only complete calendar year in which Operation Game Warden was fully operation it will provide some useful statistics.

More than 400,000 vessels boardings and searches were conducted, the river patrols destroyed, damaged, or captured more than 2,000 Vietcong craft, and killed, wounded, or captured more than 1,400 enemy. Against this the U.S. lost one PBR, and suffered 39 killed, 366 wounded, and nine persons missing in action. The PBRs were also instrumental in the defense of My Tho, Ben Tre, Chau Doc, Tra Vinh, and Can Tho during the Tet Offensive.³⁶ The mine sweeping operations were successful. From the inception of the program through its turnover to the Vietnamese in 1970, an average of 20 ships per day passed through the U.S. swept areas without hitting a mine. However one mine sweeper was lost due to a mine blast.³⁷

Mobile Riverine Assault Force

While Operations Game Warden and Market Time were created primarily to prevent supply to Vietcong forces and ensure open lines of communications for friendly forces, another element was added to the brown water maritime capability: offensive actions against the enemy land forces. The joint Army-Navy Mobile Riverine Force (MRF) was created to take direct action against the enemy. As finally organized in June 1968 the MRF consisted of the 2nd and 3rd Brigades of the 9th Infantry Division as the Army component. The Navy component was Task Force 117 (TF 117), also known as the Riverine Assault Force. TF 117 consisted of two mobile riverine groups, which consisted of two river assault squadrons. Each squadron had five monitors armored with bar and plate armor, and armed with a mix of 50-caliber machine guns, 20-milimeter guns, two 40-milimeter grenade launchers and an 81-milimeter mortar. In addition to the five monitors, each squadron had two or three command and control craft equipped with similar armaments.³⁸ The Army brought its own transportation to this arrangement in the form of 26 armored troop carriers (modified LCMs), armed with 50-caliber machine guns, rapid fire grenade launchers, 20-milimeter cannons and in some cases flame-throwers. In September 1967 the Navy added eight to 16 support patrol boats to each squadron to support the LCMs in escort and mine sweeping duties.³⁹

The MRF conducted regular engagements with the enemy as a maneuver force from the water. These engagements caused heavy casualties to the enemy and showed the MRFs' versatility by steaming 61 miles to join other combined forces in attacking two Vietcong battalions at Dong Tam. The engagement decimated the enemy. The MRF achieved success in all its operations, but particularly notable was the effect this very mobile force had in countering the Tet Offensive in the Mekong Delta area, which earned it a Presidential Unit Citation.⁴⁰

The Vietnamization of the War, 1968-1973

In consonance with diplomatic initiatives and pressure from the American public, the war in Vietnam was turned over to the Vietnamese people to fight. The American brown water force reached its peak in terms of numbers of craft in October 1968. The coastal surveillance force (Market Time) operated 81 swift boats, 24 Coast Guard WPBs, and 39 other vessels; the river patrol force (Game Warden) operated 258 patrol and mine sweeping craft, and the riverine assault force had 184 monitors, troop transports, and escorts.⁴¹ This force was either turned over to the Vietnamese or withdrawn to the United States by March 1973.⁴² While the brown water force continued to contribute to the war, the lessons learned from what a large brown water fleet can accomplish in terms of interdiction and control of vital waterways can be extrapolated from the actions prior to the Vietnamization of the force. While dramatic actions such as Operation Sea Lords, a combined thrust into Cambodia, took place, they will not be discussed as no further insights will be gained in determining the adequacy of today's U.S. Navy brown water capabilities.

Analysis of the brown water operations in South Vietnam

Coastal Protection

The Market Time operation provides an example of the numbers of brown water craft required to prevent infiltration efforts along a 1,200 mile coast line. As previously stated, in the year with the greatest U.S. presence the following craft numbers were available:

USN: 81 Swift Boats, 24 WPBs, and 39 other craft.

VNN: 44 seagoing vessels, 200 landing craft, patrol boats and other vessels, and more than 600 junks.

Total: 266 craft and 300 junks.

As previously discussed the Vietnamese effort was considered substandard, so the Vietnamese force available is considered to be only fifty percent of their actual numbers.

This total reveals that there were approximately one craft and one junk for every five miles of coast line. Of course the patrols did not operate in such a distributed pattern, but tended to concentrate around likely infiltration spots. Also the alerts provided by shore based radar, patrolling destroyers, and aircraft could send the Market Time craft where they were needed most. For the reasons off speed, area able to patrol, on-board radar, and other capabilities this paper will equate one patrol craft equal to three junks. Therefore, the equivalent of 370 craft patrolled the 1,200 mile coast of Vietnam, out to at least 12 miles from shore (visual horizon). This equates to one boat being able to cover 3.27 miles of coast or 39.24 square miles of ocean, in around-the-clock surveillance. Another important factor in determining the number of boats needed to patrol a coast, and inherent in this task, is stopping local boats, boarding and inspecting them, is the number of craft in the area. According to Cutler, the Market Time forces were confronted with between 4,000 and 60,000 boats a day in coastal traffic.⁴³ To analyze how many boats a day a given patrol craft would be expected to try to intercept, a conservative 10,000 boats per day is taken as the base figure. Therefore, the equivalent of 370 craft are needed to find, stop, board, and search 10,000 craft in a 24-hour period. This equates to 27.3 boats inspected per day per patrol craft, or just over one an hour. The conclusion to be drawn from these figures is that if the United States chooses to conduct a similar coastal interdiction/inspection program today it will need one patrol craft for every 3.27 miles of coast needing protection, presuming the availability of other source cueing such as ships and aircraft, and/or one boat to daily inspect 27.3 boats.

The question these findings raises, is: Is there an area of the world in which the United States could reasonably expect to conduct similar coastal protection operations? The answer is yes. There are two trouble spots in the world today where a similar situation could develop: the Korean peninsula and the Persian Gulf. These two regions are particularly important, and are the examples of major regional conflict described in the "National Security Strategy." Specifically the "National Security Strategy" states, "The focus of our planning for major theater conflict is on deterring and, if necessary, fighting and defeating aggression by potentially hostile regional powers, such as North Korea, Iran or Iraq."⁴⁴

Analysis of the Korean Peninsula

In analyzing the potential size of a brown water force which the U.S. may need to commit to a region it is important to prove three conditions: First, that the U.S. has a vested strategic interest in the region; second, that the U.S. has demonstrated its will to send forces to the region; and lastly, that conflict in the region is considered reasonably possible. If these three conditions are met the study of brown water force requirements for the region is appropriate. If the region meets these criteria and the geography and type of potential region makes it apparent that missions for brown water forces exist, then the Navy should have the numbers of brown water craft in its inventory to meet the needs for successful prosecution of the theater campaign.

It has been previously pointed out that the "National Security Strategy" identifies North Korea as a potentially hostile power. The "National Security Strategy" also states that, "Our deep bilateral ties with allies such as . . . South Korea, . . . , and a continued American military presence will serve as the foundation for America's security role in the region."⁴⁵ The "National Security Strategy" goes on to report:

The continuing tensions on the Korean Peninsula remain the principal threat to the peace and stability of the Asian region Our [U.S.'s] long run objective continues to be a non-nuclear, peacefully reunified Korean Peninsula. Our strong and active commitment to our South Korean allies and to the region is the foundation of this effort.⁴⁶

Reading what the "National Military Strategy" has to say further reinforces the U.S. strategic interest in the region, and willingness to use force on the Korean Peninsula. The "National Military Strategy" states:

The defense of the Republic of Korea (ROK) will remain a key element of U.S. strategy in this region [North West Asia]. Our forward stationed forces there represent an unambiguous demonstration of that commitment. We will continue to conduct a vigorous exercise program with ROK forces to ensure we are able to work together and to reinforce the theater, if necessary.⁴⁷

The Navy's white paper "Forward ...From the Sea" while not addressing the Korean theater in particular, does reaffirm its commitment to support of the "National Security Strategy."⁴⁸

It is not too difficult to envision conflict again breaking out on the Korean peninsula. Currently North Korea, a country which suffers from poor land use and deteriorating roads and ports, is enduring a critical shortage of food.⁴⁹ The 27 January - 2 February 1996 issue of The Economist reports, "The American government is worried that famine might cause a desperate North Korean government to indulge in some sort of military stunt."⁵⁰ With conflict on the Korean peninsula being a reasonable possibility, America needs to be prepared to defend her ally, South Korea. The Strategic Studies Institute (SSI), the strategic level study agent for the Deputy Chief of Staff for Operations and Plans, Department of the Army, in its World View: The 1996 Strategic Assessment reports that a major strategic detriment influencing future policy is:

In the near term, relations between Seoul [South Korea] and Pyongyang [North Korea] are not going to improve. The United States will be a part of this confrontation as a result of its political and military commitments to South Korea because of the U.S.-Democratic People's Republic of Korea Agreed Framework on Nuclear power issues. If fighting breaks out on the Korean Peninsula, U.S. forces will be involved.⁵¹

Therefore, with a clear picture of the U.S.'s resolve to support South Korea as expressed in the national and military strategies, current tensions on the Korean Peninsula, and thoughtful analysis by SSI that tensions there will not subside soon, it is appropriate to analyze the Navy's ability to support commitment to the region. The analysis of the Navy's support is, by the nature of this document, limited to prospects of conflict in this theater requiring a brown water force structure.

The next logical question is what type of maritime threat does North Korea pose to South Korea in coastal defense environment? North Korean special forces train to insert into South Korea via special high speed insertion craft or via fishing boat (also submarine and airborne insertions are expected) to perform acts of sabotage prior to and during an armed conflict on the peninsula.⁵² Therefore if tensions mount on the peninsula it may become necessary to institute a Market Time type of operation to inspect all boats in South Korean waters for possible special forces personnel and/or munitions and supplies.

What type of brown water force will the U.S. need to have in place to ensure South Korean defense? South Korea has a 1,500 mile coast line.⁵³ With one boat covering 3.27 miles of coast line, it would require a force of 459 boats for total coverage. From the author's experience it is not uncommon to encounter 2.4 fishing boats per square mile in South Korean waters at night, and about one per square mile during the day.⁵⁴ The average number of boats per day which will need to be searched is 12,000. This number is based on 1,500 mile South Korean coast line ratio to the South Vietnamese 1,200 mile coast line (five to four) being applied to the South Vietnamese average of 10,000 boats operating in the coastal waters per day. This product yields 12,500 boats per day, but 500 is reduced from the number to account for a small portion of Japanese land, Tsushima islands and surrounding territorial waters, which occupies the south-east corner of the search area. Using the comparison factor of one boat being required to search 27.3 boats per day, the brown water force in Korea and estimating that 12,000 boats will need to be searched per day, it will take the allies 439 boats to conduct the searches.

South Korea has 132 patrol craft and coast guard vessels to use in this effort.⁵⁵ Her blue water force of 42 destroyers, frigates, and corvettes will probably be used to hunt submarines, engage the North Korean navy, and support the ground campaign with gunfire support. This leaves a gap of between 307 and 327 needed patrol craft to support this type of campaign. This initial analysis of the shortfall is probably excessive. It has been the author's experience in working closely with the South Korean Navy during two deployments that the South Korean Navy will take very aggressive steps to protect its shores. This could include requiring all boat traffic to pass in and out of a three-mile range of land at a few specified points allowing thorough searches of the fishing craft. Any craft not complying with this rule

would be attacked. This then would probably eliminate the need to search other nations' fishing boats, such as China's and Japan's, as they would more than likely stay well away from any hostile zone.

Another significant factor is the solid coastal observer organization which South Korea has in effect, which can cue coalition brown water craft to intercept incoming boats and to inspect possible infiltration sites. Another factor favoring the South Koreans is that if a hot war should erupt they would be able to attack the harbors where the North Koreans dock their boats, thus reducing the threat directly. With these considerations, the author feels warranted in reducing the number of required allied craft by 50 percent. Then the U.S. and South Koreans will need to field a combined total of 220 to 230 craft. With the South Korean force structure of 132 craft the U.S. will need to supply 98 to 108 brown water craft.

The Persian Gulf Region

The Persian Gulf could also play host to another Market Time type of operation. Again for this region the three part test of does the U.S. have a strategic interest in the region, is the U.S. willing to commit forces to the region, and is there a possible near term conflict which would require the deployment of U.S. military forces to the region, will be applied.

The Arab countries which border the Gulf are rich in oil and natural gas reserves. The current "National Security Strategy" describes any threat to the U.S.'s free access to Persian Gulf oil reserves as a threat to promoting prosperity at home and therefor a threat to our national security. As the U.S. depends on oil for greater than 40 percent of its energy needs, and as 45 percent of our oil is imported it is easy to understand the American interest in defending the Persian Gulf states.⁵⁶ As further stated in the "National Security Strategy" "The United States has enduring interests in the Middle East, especially . . . assuring the security of . . . our Arab friends, and maintaining the free flow of oil."⁵⁷ That we are prepared to intervene militarily in the region has been demonstrated by the U.S.'s deployment of forces during Operations Desert Shield, Desert Storm and Vigilant Warrior, this willingness to commit forces is further reinforced in the "National Security Strategy."⁵⁸ The "National Security Strategy" further states:

In Southwest Asia, the United States remains focused on deterring threats to regional stability, particularly from Iraq and Iran as long as those states pose a threat to U.S. interests, to other states in the region, and to their own citizens. . . .

Our policy toward Iran is aimed at changing the behavior of the Iranian government in several key areas, including Iran's efforts to obtain weapons of mass destruction and missiles, its support for terrorism and groups that oppose the peace process, its attempts to undermine friendly governments in the region and its dismal human rights record.

. . . we [U.S.] will continue to work closely on collective defense and security arrangements, help individual GCC states meet their appropriate defense requirements, and maintain our bilateral defense agreements.⁵⁹

These thoughts are further echoed in the "National Military Strategy":

In Southwest Asia, we [U.S.] must remain alert to the dangers posed by a still aggressive Iraq and a revolutionary Iran that continues to fan the flames of social, political, and economic dissent among neighboring states. U.S. commitment to peace and security in the critical Persian Gulf region is demonstrated through bilateral defense cooperation agreements, security assistance, pre-positioning, forward presence, and combined exercises.⁶⁰

SSI's World View: The 1996 Strategic Assessment predicts that before the year 2006, Iran may pose a major threat as regional hegemon, and regional peer competitor.⁶¹ SSI goes on to identify the following trends in the Middle East which Iran could exploit:

By the beginning of the 21st century, Muslims throughout the Middle East will demand that Western powers, especially the United States, withdraw from the Persian Gulf. The House of Saud [rulers of Saudi Arabia] will be pressured increasingly to limit its support for the United States. Without Saudi Arabia, the United States will be unable to find a reliable surrogate to police the area.

Throughout the Middle East the disparity in the distribution of wealth will continue. A high birth rate will exacerbate the problem by insuring that a youthful population predominates.⁶²

Therefore if the Persian Gulf countries were threatened by Iran then we would support them. The scenario in which a sizable coastal force would be called for would be in the event of Iranian terrorist activities short of actual war. The Iranian Shia fundamentalist regime has long sought to export its brand of Islam to other Islamic countries. This is a current and real problem, as reported in the 24 February 1996, issue of The Kansas City Star:

Unrest in Bahrain: Antigovernment protesters set fire to a bank, and riot police patrolled villages recently shaken by unrest, residents of Bahrain said Friday [23 February]. Shiite Muslims have been leading demonstrations for weeks to demand a restoration of Parliament and greater political freedoms from the ruling Al Khalifa dynasty, which adheres to the Sunni sect of Islam.⁶³

The prime targets for this unrest are the Persian Gulf Arab monarchies in which the Shiite underclass is excited to revolt by Shiite Iran against the Sunni ruling class. Since the current Iranian regime is unpredictable, it is certainly reasonable to suspect that it could try to actively export its radical religion to stir the masses in Arab countries to revolt. Indeed, under Article 154 of the Iranian constitution, the Iranian government is committed to protecting "the struggles of the oppressed [Shia peoples] against the arrogant [Sunni monarchies]." ⁶⁴ The easiest way to get arms, supplies, and Iranian Revolutionary Guard vanguard troops into these countries is by boat from Iran. In this case we would find ourselves in a situation very reminiscent of the Vietnamese conflict. A hostile country, in this situation Iran acting in North Vietnam's role, is exporting revolutionary ideals and arms to a democratically underrepresented people. Suffice it to say that if Iran did try to export radical Islamic fundamentalism to the other Persian Gulf states the U.S. would actively try to oppose it, and if the means of export was maritime then the U.S. would commit a large portion of the brown water force to the fight.

Calculating the exact number of patrol craft required to patrol this region is difficult. Since the target of this attack would be the Arab monarchies, the entire Arabian peninsula could provide viable landing spots for infiltrating dhows or other fishing craft. On the other hand, the short route directly across the Persian Gulf is the easiest. To add to the confusion the boat density in the gulf is not as dense as it was in Vietnam or is in the waters near Korea. However the presence of a large number of offshore oil rigs provides ample hiding places for the infiltrators. The Arab Persian Gulf states of Kuwait, Saudi Arabia, Qatar, Bahrain, United Arab Emirates, and Oman, henceforth to be referred to as the Gulf Cooperation Council (GCC), have more than 600 patrol type craft in their navies and coast guards. These countries may have already anticipated this paper and prepared for such a brown water contingency. However, despite the large numbers of craft in the GCC inventory, it was the author's experience in 1987 that the only readily trained maritime force belonged to Oman, so these numbers may reflect a condition similar to that of South Vietnam, where large numbers of craft had to be discounted due to the poor performance of the Navy. The evaluated lack of effectiveness of the GCC armed forces is supported by Paul Seabury and Angelo Codevilla in their book War Ends and Means. They state that a

contributing factor to the U.S. involvement in the Gulf War was, "The U.S. government realized that the Arab regimes of the region had neither the political nor the military wherewithal to defend themselves and the oil wealth beneath the sands. Hegemony over the Persian Gulf could give a local dictator power over the world economy."⁶⁵ Therefore the GCC countries coastal craft are evaluated at 60 percent effectiveness as compared to the U.S. brown water force. This percentage is ten percent greater than that applied to the South Vietnamese brown water force owing to the better materiel condition of the GCC craft and the solid performance of the Omani Navy. So the GCC will bring an effective force of 360 craft to the brown water environment.

The coast line of the Arabian Peninsula from Kuwait in the east to Saudi Arabia in the west is 4,400 miles long. The length of the GCC Persian Gulf and Gulf of Oman coast is 2600 miles.⁶⁶ The figure of 2,600 miles will be used to calculate the numbers of patrol craft required to intercept infiltrating craft. The 2,600 miles will be reduced to 2,200 account for the fact that the west coast of Qatar and the islands of Bahrain lie very close to the Saudi Arabian Coast, thus causing overlapping areas of coverage. In other words since the number of craft required to patrol a given coast line was determined from a given area of water extending from a coast straight out to sea, the effective GCC coast line may be reduced, since the perpendicular measure from the Qatar, Bahraini, and Saudi Arabian coast lines extend into each other. The entire coast of the Arabian Peninsula may provide landing sites. However, as the distances to be traversed outside of the Persian Gulf and Gulf of Oman are significantly greater than those across the Persian Gulf route, it will be assumed that infiltrating craft to these distant points will be of a larger, more seaworthy nature and therefore well within the capabilities of larger blue water ships to intercept and board. With 2,200 miles of coast needing to be protected, and multiplying this distance by the previously determined figure of one craft per 3.27 miles, the requisite number of brown water craft needed to properly execute this operation is 673 craft. It was previously determined that the GCC countries had the equivalent of 360 craft to apply against this number leaving a shortfall of 313 craft to be filled by the U.S.

The next number to calculate is the amount of patrol craft required to intercept, board and search the dhows, fishing craft and other small vessels to be found in the Persian Gulf. The small craft density in

the Persian Gulf is much less than that previously described for East Asia. While the Persian Gulf has about twice the coast line of South Vietnam, the shipping density is about 75 percent less than that.⁶⁷ The number of craft present in Persian Gulf waters will be based on 5,000 boats per day, 5,000 less than the 10,000 boats per day in South Vietnamese waters. Multiplying 5,000 boats per day by the previously determined figure of one brown water craft per 27.3 boats to be searched produces a figure of 183 brown water craft. This number is probably excessive. The Economist Intelligence Unit stated in April 1994 that the fishing industries of Bahrain [and other GCC states] would be very negatively impacted by the water pollution resulting from the Gulf War.⁶⁸ Returning to the figure of 183 craft and comparing this to the GCC's 360 yields a surplus of 177 craft.

Here the two means of calculating the number of patrol craft required to secure a coast against infiltration and smuggling have produced two greatly divergent numbers: a deficit of 313 craft and a surplus of 117. Both methods of calculations were based on historical figures from the Vietnam War and produced close numbers for a potential Korean conflict. One of these methods breaks down in the Persian Gulf environment, which has a much smaller density of boats than the East Asian counterparts. It is beyond the mathematical means of the author to determine which model is valid for low density figures. Therefore, the average of the two figures will be used, which produces a deficit of 98 boats that the U.S. will need to fill. This number seems prudent when the possible ineffectiveness of the GCC navies is considered.

Riverine Control

The Game Warden operation provides lessons in the numbers of craft required to keep control of inland waterways in an environment of insurgency. While South Vietnam had thousands of miles of inland waterways, the brown water force was confined to patrolling the significant lines of communication. What can be determined is how much water a patrol boat can patrol in a given 24-hour period. According to Rear Admiral (retired), then Commander Sayre A. Swartztrauber, in a May 1970 article "River Patrol Relearned," the normal routine for a Game Warden patrol boat was to work in pairs

[for mutual support] at night, and patrol at slow speeds (3-5 knots) for a 12-hour period.⁶⁹ So at the outside a pair of patrol boats could cover 50 nautical miles, although 35 to 45 nautical miles would be more realistic. Since it was tactical prudence which dictated the slow speeds, instead of the limitations of the boats themselves, it can be assumed that today's riverine craft would operate at the same maximum speed of the patrol boats in Vietnam. Therefore, today a pair of patrol boats could be expected to effectively cover 35 to 45 nautical miles a day while conducting standard patrolling.

Is there an area of the world in which the U.S. might again commit riverine forces on the scale of Operation Game Warden? This question is especially challenging because riverine operations of this nature are essentially counterinsurgency/guerrilla operations. Commitment of U.S. forces to a counterinsurgency may not be popular in the U.S. However, there is one place where the U.S. may commit forces to combat a counter insurgency/guerrilla type of campaign: Colombia.

Before analyzing an U.S. commitment of significant brown water forces in Colombia, it will be useful to review Colombia's recent history and significant geographic features. As summarized in the Economist Intelligence Unit's, Colombia 1994-95, country profile, Colombia has suffered from insurgencies and guerrilla movements since the early 1960s. In the 1980s and 1990s these guerrilla groups became involved in the illegal drug trade, with many of these groups now more interested in profit than ideology. Colombia has a significant drug problem, particularly cocaine. Colombia is a major grower of illegal coca and processes much of the coca grown throughout the Andean region into cocaine. This trade in cocaine provides ample funds for the illegal drug traffickers to support their ruthless ends. Numerous politicians and police officials have been corrupted, and judges slain.⁷⁰ The most significant geographic feature of Colombia, as it applies to the usefulness of brown water forces is the inland waterways. The country profile reports: "Inland waterways are also well developed and are an extremely important form of transport. About 9,000 km [5590 miles] are navigable, over 6,000 km [3730 miles] serving areas which have no other means of transport. About 3.5m tons of freight are carried on the inland waterways each year."⁷¹

Therefore Colombia shares many similarities to South Vietnam. Specifically, both are fighting armed insurgencies, both depend on inland waterways for transportation, and both were/are of interest to the U.S.

To validate Colombia as a region where it is reasonable to suspect the U.S. may deploy brown water forces, the same test that was previously applied to the Korean Peninsula and Persian Gulf will be applied. This test is: Does the U.S. have a strategic interest in the region? Is the U.S. willing to commit forces to the region? Is there a possible near term conflict which would require the deployment of U.S. forces?

The U.S. does have national security interests in Colombia. The introduction to the "National Security Strategy" states, "Transnational phenomena such as . . . , narcotics trafficking . . . have security implications for both present and long term American policy."⁷² More specifically the "National Security Strategy" reports, "We are working with our neighbors through various hemispheric organizations, including the OAS [Organization of American States], to invigorate regional cooperation. Both bilaterally and regionally, we seek to eliminate the scourge of drug trafficking, which poses a serious threat to democracy and security."⁷³ The "National Security Strategy" addresses the issue of fighting drug trafficking in particular:

The U.S. has shifted its strategy from the past emphasis on transit interdiction to a more evenly balanced effort with source countries to build up institutions, destroy trafficking organizations and stop supplies. We will support and strengthen democratic institutions abroad, denying narcotics traffickers a fragile political infrastructure in which to operate. We will also cooperate with governments that demonstrate the political will to confront the narcotics threat.⁷⁴

The "National Military Strategy" identifies "drug lords [as one] of the more serious threats that bleed across our own and other nations' borders."⁷⁵ Counterdrug operations are a means specified in the "National Military Strategy" to achieving national military objectives.⁷⁶ As a component of the "National Military Strategy", peacetime strategy counterdrug operations are described as, "The Armed Forces, working in close cooperation with law enforcement agencies, will use all means authorized by the President and Congress to halt the flow of illegal drugs into this country."⁷⁷

From an analysis of the quotes taken from the "National Security Strategy" and "National Military Strategy," the U.S. has a definite strategic interest in stemming the flow of drugs originating in Colombia, and has a will to project forces into the region. This will to project forces is even more apparent when it is remembered that the U.S. sent a significant invasion force to Panama in December 1989 as part of Operation Just Cause. Panama borders Colombia.

While the U.S. has interest in Colombia and has demonstrated a willingness to commit forces to the region, it is more difficult to demonstrate that within Colombia there is a credible near term contingency which would require the commitment of brown water forces. The Strategic Studies Institute in its World View The 1996 Strategic Assessment identifies eighteen major determinants which will influence the Army and the U.S.'s strategic posture over the next decade. The two that indicate possible U.S. commitment of forces to the region are:

Through 2006, in Latin America, a rapidly expanding urban population and problems associated with poverty will foster unrest, subversion, terrorism, insurgency and coups d' etat. The United States will feel the impact in the form of illegal migration, increased drug trafficking, and possible repeated deployments of U.S. forces in various peace keeping and peace making operations.

Drug trafficking will continue as a major problem throughout Latin America. As long as the U.S. market remains lucrative, the lure of coca cultivation and cocaine production will continue.⁷⁸

Therefore SSI deems it realistic that the U.S. may commit forces to Latin America (Colombia) to counter the flow of drugs.

The commitment of significant brown water forces to Colombia may happen sooner rather than later if the following current situation evolves as the author of this paper feels it might. The people of Colombia are currently very upset with President Samper due to his alleged acceptance of drug money to finance his campaign. The Economist reports:

For months now, political life in Colombia has been ruled, and distorted, by one issue: the charge that President Ernesto Samper's mid-1994 election victory was financed by the Cali drug mob—and that he well knew it. The charge dates from the morrow of the vote. Since August the affair has grown to Watergate scale, with testimony from first the treasure and recently the manager of his campaign . . . Few Colombians believe him. Businessmen and now bishops have urged him to step aside . . . A country [Colombia] whose most respected figure is its chief prosecutor is in trouble. One with Colombia's woes—drugs, guerrillas, murders (25,000 last year), kidnappings (1,150), oh, and poverty—cannot afford a shaky government on top.⁷⁹

A recent Washington Post article goes on to describe that President Samper had been dealing with drug lords since 1982, and on February 2, 1996 the government's star witness died with 12 bullet holes in her.⁸⁰ It is not too hard to imagine that if and when a successor to Samper reaches office that he, with his people's support, may ask Washington for assistance in combating the drug scourge in Colombia. If asked, the U.S. will probably agree to send the appropriate force, as the "National Security Strategy" states combating drugs is a national security issue. Any administration would enjoy being able to state confidently to the American people that it is finally doing something concrete to actually win the war on drugs.

Why would riverine forces be appropriate in this situation in Colombia? According to the article "Fighting Drugs at the Source" in July 1994 issue of U.S. Naval Institute Proceedings Colombia contains 3,300 miles of navigable inland water ways which is divided among four major rivers and 24 branches. The reader will note that this figure, 3,300 miles, differs significantly from the 5,590 miles of navigable waters listed in The Economist's report. This divergence of figures will not be important in calculating the required numbers of brown water craft to be used in Colombia. These waterways are the primary source of transportation for the vast majority of precursor chemical, gasoline, acetone, and cement, and a significant mode of transportation for coca leaves, cocaine base, and cocaine. Due to simple logistics most of the drug labs are located within 200 yards of the river.⁸¹ Therefore, the production of cocaine can be significantly reduced through the control of the rivers. The inward flow of precursor chemicals can be greatly reduced, the outward flow of cocaine can be disrupted and the lab sites can be assaulted by riverine forces.

The size of the force necessary for Colombia must account for the fact that there are 20 entrances to the country by river. Each one should be controlled by a minimum of ten boats to ensure coverage of these key sites, with 20 craft dedicated to the Magdalena River which is the major river leading from the Caribbean coast inland to the center of the country near Bogota. This coverage is required so that incoming boat traffic can be searched for the precursor chemicals. Ten boats are judged to be enough to supply the force necessary to inspect suspected craft. Twenty boats are used at the Magdalena River to

support its greater amount of traffic. Also major riverine transportation arteries which have been subject to attack should be made secure. Such an artery is the Rio Guaviare, the major east-west line of communication in central Colombia, where the Colombian Riverine Combat Elements (RCE) lost 60 percent of their boats and suffered heavy casualties when ambushed by insurgents.⁸² In the author's judgment approximately 600 miles of river which serve as the major traffic artery should be protected. So with approximately 600 miles of river as the major transportation arteries connecting key urban areas within Colombia, and the ability of two patrol boats to patrol 35 miles of river a day, then 38 patrol boats would be needed. Add these to those needed to secure the riverine entrances to the country, and the U.S. would need to send 258 boats to Colombia. This number would be reduced as the Colombian navy rebuilds after its disaster on the Guaviare. However, even if the Colombians develop a sizable riverine force, the author would still give it a 50 percent effectiveness rate based on its past performance.

Maneuver Warfare from a Riverine Environment

The lesson learned from the Army-Navy Mobile Riverine Force in Vietnam is that this type of maneuver warfare is possible and has been successful. It will take 27 LCMs to transport one infantry brigade. There are no situations in the world today, with the possible exception of Bosnia, in which the author foresees the use of brown water forces in this manner. This type of warfare is suited to an environment with significant waterborne lines of communication, in a counterinsurgency environment, and where at least a corps has been committed to the conflict.

The U.S. division in Bosnia could use riverine craft to move tactically along the rivers in the country, but due to the short commitment period (i.e. one year) this appears unlikely. If riverine maneuver warfare is necessary, the LCMs could be received by NATO nations, or the Navy could send them from Little Creek, VA. The latter would take at least three-and-a-half weeks to accomplish: one week to on load and off load the amphibious ships and two and a half weeks to transport them there. While the use of this tactic again may not happen in the near future, the advances in air cushion

technology which would allow the LCM (now LCAC) to travel overland may revolutionize maneuver warfare.

The Persian Gulf

Operations Earnest Will

The purpose of Operation Earnest Will, conducted from 1987 to 1989, was to protect Kuwaiti oil tankers, which had been reflagged to American registry, during their transit of the Persian Gulf, Strait of Hormuz, and Gulf of Oman. The U.S. was prompted to this action after the Iran-Contra scandal. There were three significant events which followed the revelations of the arms-for-hostages deal. First, the hard-line, ultraconservative faction within the Iranian government felt it had lost face and needed to show the world that it still despised the "Great Satan" [U.S.]. Second, the Kuwaiti government was prompted to seek Soviet support to protect its tanker traffic from Iranian attack. Third, the NSC was galvanized into action to protect the flow of oil from the Persian Gulf and to counter Soviet inroads in the region. Thus the U.S. increased its naval presence in the region, agreed to reflag Kuwaiti tankers, and the Iranians made greater efforts to attack oil tankers and to embarrass the U.S.⁸³ However, the threat to shipping did not come only from Iran. The increased naval presence was required to keep the tankers from being purposely or inadvertently attacked by Iran or Iraq. The significant threats to shipping lay in being inadvertently hit by an Iraqi air to sea missile, as happened to the USS Stark in May 1987, striking a mine as happened to the reflagged tanker Bridgeton in August 1987, undergoing a Silkworm type missile attack, or being attacked by small arms fire from Iranian speed boats, which happened to many neutral ships.⁸⁴ The U.S. responded to these threats to shipping by sending frigates, destroyers, and cruisers to escort the tankers through the dangerous waters, and stationing a CVBG in the North Arabian Sea. These ships were to defend against missile and boat attack. To defend against the mine threat the U.S. sent a squadron of minesweeping helicopters aboard an amphibious assault ship (LPH) to sweep for mines ahead of the convoys, and minesweepers to sweep suspected mine fields.

The U.S. also deployed several Mark III patrol boats to the Persian Gulf. The total number of Mark IIIs never exceeded twelve boats. The missions of these boats were to conduct harbor surveillance in the vicinity of U.S. naval moorings in Bahrain, provide a vehicle for possible SEAL insertion/extraction, and maritime patrol. The boats were stationed in Bahrain and on two barges in the Persian Gulf. The barges were used because the Saudi Arabian and Kuwaiti governments would not let U.S. naval forces operate out of their bases, and the location of the barges allowed the boats to patrol near the sea transit lanes which were vulnerable to mining.⁸⁵ The Mark III patrol boats saw limited action recovering Iranian speed boats and Iranian detainees (detainee was the legal term for what would typically be known as a prisoner of war) after they had shot a shoulder-fired missile at Army helicopters, and the helicopters returned fire disabling the boats.⁸⁶

The U.S. brown water forces did not see much action, but there was significant lesson learned from their experience during Operation Earnest Will. That is that other countries, specifically Iran, were outfitting high performance speed boats capable of speeds in excess of 40 knots, with similar weapons found on the Mark III. The Iranians also exercised high speed suicide boats packed with high explosives during the Iranian naval exercise "Martyrdom." As reported in Time these boats were displayed on Iranian television which showed "suicide speedboats skimming the waters, apparently practicing for the day when they would be called upon to crash into enemy warships."⁸⁷ These boats caused concern to Navy officials. Optimally, to counter the threat of these fast boats, especially the suicide boats, the Navy should have its own boats which could outperform the Iranian boats. Developing a U.S. boat to counter this threat was important. Attack helicopters are terrific platforms to attack enemy patrol boats. However, they cannot search for enemy boats for prolonged periods of time, and cannot board a boat to search for concealed explosives. During 1987, the fastest armed boat in the U.S. brown water inventory deployed to the Persian Gulf was the Mark III, first introduced during the Vietnam war, and capable of 25 knots.

The Mark V patrol boat which was first introduced to the fleet in 1995 was capable of countering the Iranian speed boats. The Mark V has a top speed in excess of 50 knots and is armed with a

combination of six M-60 machine guns, 50-caliber machine guns, and/or Mk-19 grenade launchers.⁸⁸ With the Mark-V, and the high speed boats (HSB) introduced to the brown water inventory in 1990, the brown water force had the platforms to effectively counter the Iranian speed boat threat.

The potential for significant deployment of U.S. brown water forces to the Persian Gulf has been discussed. An analysis of Operation Earnest Will from a brown water perspective reveals a new threat not characteristic of the Vietnam War: the threat posed by enemy high speed craft and suicide craft. To combat this new threat the joint force commander has several assets at his disposal. These are attack helicopters (Army or Marine), naval warships, and high speed brown water craft. The author expects that all three of these assets would be used, but the counter-high speed boat force would be severely weakened without the addition of U.S. high speed brown water craft.

The attack helicopter is the most potent weapon system against boats on the open water. The range and lethality of the on-board weapons, accurate targeting and night vision systems, and the agility of the helicopter to stay with a rapidly maneuvering boat make the attack helicopter the counter-boat platform of choice. However, having around-the-clock attack helicopter support would probably not be feasible because these weapon systems are required for other missions. A warship cannot be easily damaged by the weapon systems the speed boats carry (a suicide boat packed with explosives being the exception). However, the ship's own weapon systems have a difficult time targeting a rapidly maneuvering craft on the water's surface. Therefore, speed boats can close rapidly on a surface ship before it is vulnerable to the ship's small caliber weapons, giving a suicide boat a definite chance to impact the warship. The warship acting as a convoy escort is also constrained if it has other threats to deal with. If shore based anti-ship missiles are a threat, such as the Iranian Silkworm, then the warship must stay between the land based missile and the escorted ships and thus is constrained from pursuing speed boats. If the U.S. also has its own high speed brown water craft available, then they will be able to challenge other high speed craft without the constraints of mobility, as a warship endures, or lack of on-station time, which the attack helicopters suffer from.

The number of high speed boats the U.S. should send to the Persian Gulf in case of a conflict is a difficult question to answer. If the answer is limited to convoy protection, especially in the Strait of Hormuz where reaction time is limited due the short distance from the Iranian coast to the convoy route, then fifteen high speed craft should be sufficient. Fifteen boats would allow a force of five boats to travel with the convoy one night, five boats to conduct other operations, while the other five boats undergo routine maintenance. Five boats will not provide one-for-one parity with the Iranians, but will be able to provide an initial reaction force to perceived threats, and work synergistically with the warships and attack helicopters within the convoy.

Operations Desert Shield and Desert Storm

Operations Desert Shield and Desert Storm did not add any new missions to the brown water Navy, nor produce any event which would change the conclusions reached in the analysis of the Vietnam War. What these operations did was confirm the continued relevance of a brown water force.

The Navy in general, and a brown water force in particular, did not have a tremendous challenge in gaining sea control in the Persian Gulf. Iraq has a meager coastline and had a small navy prior to coalition air attacks. With this small threat, and limited geography, there was no situation requiring Market Time or Game Warden type of operations.

The brown water Navy did conduct traditional port security. It also participated in several daring missions infiltrating and extracting SEALs from behind enemy lines. The efficiency of these operations was further enhanced with the use of the high speed boats (HSB) which had been introduced to the brown water inventory in 1990.

Perhaps the most notable contribution the brown water force played in the conflict was as part of a deception ploy. The author was a staff operations and plans officer at the Naval Special Warfare Development Group during this conflict, and knew much of what was happening in the Special Warfare community during the Gulf War. Much of what occurred during the deception operation remains classified. However, General Schwarzkopf did report during a media briefing two days after the start of

the ground war that special warfare boats played a significant role in deceiving Iraqi forces into thinking the Coalition attack would occur in the east vice in the west where it actually occurred.

The author does not mean to convey that brown water craft will be necessary for future theater level deception plans. However, if available, brown water forces could be employed creatively and provide flexibility to the joint force commander.

Haiti 1991-1995

Problems in Haiti have caused the U.S. to deploy brown water forces to the waters near Haiti during the 1990s. The two significant areas which involve brown water force participation were the intercept and repatriation of refugees fleeing Haiti via boat, and enforcement of a U.N./Organization of American States (OAS) embargo against Haiti.

The causes for U.S. intervention in Haiti stem from the September 30, 1991 overthrow of the democratically elected government of President Bertrande Aristide by a military coup. The military regime in Haiti, led by Lieutenant General Raoul Cedras, instituted a campaign of terror against the population of Haiti. In October, 1991 the OAS called for an embargo against Haiti until Aristide was restored. In May 1992 President Bush ordered the repatriation of tens of thousands of refugees who had fled the violence in Haiti. In June 1993 the U.N. authorized a worldwide oil embargo and assets freeze against Haiti. On July 3, 1993 the Governors Island agreement was signed by the Haitian parties, and called for Cedras to step down and Aristide to resume the presidency of Haiti in October 1993. On October 11, 1993, the USS Harlan County, with 200 American and Canadian troops, was prevented from docking in Port-au-Prince, which signaled the collapse of the Governors Island accord. On May 6, 1994 the U.N. Security Council unanimously approved an almost total embargo of trade with Haiti. In a four-week period during June and July 1994 more than 20,000 Haitians fled in boats toward the U.S.⁸⁹

The Haitian crises was not resolved through the use of an embargo to bring pressure on the ruling class. It was resolved through last minute U.S. negotiations with Cedras with the imminent threat of force. On 23 August, 1995, the Cable News Network (CNN) reported that the embargo was not effective,

and that among other causes for this was the ability of smugglers to hug the coastline between Haiti and the Dominican Republic without being intercepted. Whether or not the failure of the embargo was the reason for Cedras' attempt to stay in power is beyond the scope of this paper. However, it is instructive to conduct a analysis of the U.N. embargo on Haiti through the previously developed Market Time procedure.

The U.S. deployed several warships to blockade the major Haitian ports. These blue water forces were effective in halting merchant ship trade with Haiti. In July 1994 a U.S. warship fired on a merchant ship trying to run the blockade, and this event effectively stopped further attempts to violate the U.N. sanctions on merchant shipping.⁹⁰ The blue water ships were not able to operate close to shore to intercept the small boat smugglers. To attempt to stem the smuggling brown water craft were deployed to Haitian waters. These were two PCs, and four RIBs.⁹¹ The Haitian coast line is 1,100 miles long.⁹² However, due to fact that a significant portion of this coastline consists of two peninsulas which face each other, thus the waters of the facing sides of these peninsulas may be patrolled by the same craft, making the effective coastline 700 miles. Therefore, six brown water craft were available to patrol 700 miles of coast line. As previously determined, the requisite number of brown water needed to patrol a given length of coastline is one craft per 3.27 miles of coast. Thus the number of craft needed to effect an effective embargo against Haiti was 214. Of course, as previously determined, the requisite number of brown water craft is also determined by the density of boats within the area. This number was not available to the author so this figure was not calculated. Despite this lack of data it is obvious that the number of brown water craft deployed to Haitian waters was woefully inadequate for the task at hand. Therefore, the embargo was bound to fail. To further add to the inadequacy of the force is the fact that the 7.8-foot draft of the PCs made it difficult for them to operate very close to shore. Indeed, one of them even ran aground on an uncharted reef while attempting to operate close to shore.⁹³

The interception of refugees was professionally done by all maritime forces. The U.S. was fortunate that the refugees responded positively when directed to go to Guantanamo Bay, the U.S. naval base in Cuba. It would have been extremely difficult for brown water craft to forcibly embark any

significant number of refugees to transport them to a holding station. While brown water craft, at least the larger ones such as the PCs and USCG WPBs were used in the role of intercepting refugees, this mission may require the use of large blue water forces to transport the refugees, thus reducing the usefulness of brown water craft in this mission.

The Future Implications of Haiti

The answer to the question will the U.S. find itself deploying brown water forces to Haiti in the future is in the three part test: does the U.S. have a strategic interest in the region, is the U.S. willing to commit forces to the region, and is there a possible near-term conflict which would require the deployment of U.S. forces to the region?

The U.S. has always considered the Caribbean strategically important. For instance, the U.S. occupied Haiti from 1915-1934 to secure U.S. strategic interests. These interests were the fear that one of the European countries at war [World War I] might occupy Haiti and threaten the newly constructed Panama Canal, and that the financial debt which Haiti owed to U.S. companies might not be paid.⁹⁴ The U.S.'s strategic interests in the region today are described in the "National Security Strategy." The first is to promote democracy, "To promote democracy, we [U.S.] have . . . worked with our Western Hemisphere neighbors restoring the democratically elected government in Haiti . . ."⁹⁵ The "National Security Strategy" goes on to state: "Not all security risks are immediate or military in nature. Transnational phenomena such as . . . rapid population growth and refugee flows also have security implications for both the present and long term American policy."⁹⁶ Thus refugee crises, such as occurred in Haiti, are of strategic interest to the U.S. The "National Security Strategy" identifies the fostering of democracy as a critical concern to the U.S. It states:

The core of our strategy is to help democracy and markets expand and survive in other places where we have the strongest security concerns and where we can make the greatest difference. This is not a democratic crusade; it is a pragmatic commitment to see freedom take hold where that will help us the most. Thus, we must target our effort to assist states that affect our strategic interests, such as those with large economies, critical location, nuclear weapons or the potential to generate refugee flows into our own nation or into key friends and allies. We must focus our efforts where we have the most leverage.

How should the United States help consolidate and enlarge democracy and markets in these states? We must be willing to take immediate public positions to help staunch democratic reversals, as we have in Haiti and Guatemala.⁹⁷

Thus, the U.S. strategic interests in Haiti are ensuring democracy and preventing outflows of refugees. The U.S. demonstrated a willingness to commit forces to Haiti during the 1991-1995 period of military rule. The last question to be answered is there any likelihood of a crisis developing in the region which would require the deployment of U.S. forces?

The SSI's World View: The 1996 Strategic Assessment, states that future U.S. involvement in Haiti, and other Caribbean countries is likely. SSI states:

Economic underdevelopment and wide gaps between rich and poor will continue to produce high levels of illegal migration of Latin Americans to the United States To these refugees seeking economic opportunities will be added those who claim to be fleeing political persecution. Caribbean migration will increase substantially and could very well reach crisis proportions, especially if the Castro regime comes to a violent end Economic hardship and political violence will continue to push Haitians towards the United States. By the 21st century, if not before, immigration from the Dominican Republic will also be a problem.⁹⁸

SSI specifically identifies U.S. intervention in Haiti as likely. "The political crises in Haiti is likely to reemerge when the U.S./U.N. peacekeeping forces withdraw. Political instability, violence and authoritarian rule will return. Haiti will not be able to reverse the process of socio-economic ruin which has marked its history for 200 years. Pressure to emigrate will remain enormous."⁹⁹ SSI concludes the chapter on Latin America by stating, "continued political instability in the Caribbean Basin will probably lead to one or more such interventions during the next decade. With Haiti and Cuba being among the most likely candidates."¹⁰⁰

Therefore it is likely that the U.S. will commit forces to the Caribbean in general, and to Haiti in particular, in the future. Should a blockade again be put in place, the U.S. would be well served to dedicate a significantly greater brown water force to ensure the effectiveness of the blockade. The number of craft to support this blockade was previously determined to be 214. These craft could also be used to intercept refugees provided they are willing to obey the order to go elsewhere than U.S. shores. Should the refugees refuse to obey then the brown water craft commander would be in a difficult position. He

could hardly fire on refugees, and taking them aboard his craft would not be feasible due to the limited space. Brown water craft would still be useful in blockading points of egress, and perhaps in inserting special forces to destroy the boat yards, thus eliminating the boats in which the refugees could use.

Current Status of the Brown Water Force

To properly judge the availability of U.S. craft to support the potential deployment scenarios previously described, it will be instructive to analyze the current material condition of the brown water forces. The organizations that oversee the material condition of naval vessels are the Board of Inspection and Survey, and its subordinate commands the Board of Inspection and Survey, Pacific (INSURVPAC), and the Board of Inspection and Survey, Atlantic (INSURVLANT). However, these organizations only inspect the PCs, because they are classified as commissioned ships. All other varieties of craft in the special boat squadron inventory are classified as boats, and are not inspected by the inspection and survey boards. There are no significant material faults in the PCs as a class, and all may be judged as being operational on any given day.¹⁰¹

The only organizations which are regularly aware of the day-to-day condition of the boats are the special boat units themselves, although the maintenance personnel at the special boat squadrons were generally aware of the conditions of the craft in the subordinate units. Telephone conversations with the various special boat units indicate that the material condition of the boats found in the regular squadrons is sound. The material condition of the boats in the reserve squadrons, however, is not as good. The operations officer at one of the reserve units claims that his unit is fortunate to have one in three of its Vietnam War era boats operational on any given day. The engines on these boats are old and frequently need to be overhauled. Therefore only two-thirds of the reserve brown water force can be considered available for deployment in a crisis. This decrements the available brown water force by 18 craft, from the total of 223 to 205.

¹QMC Peacock of SBS 1, interview by author, telephone, 20 February 1996, Fort Leavenworth, KS.

²OSCM Conner of SBS 2, interview by author, telephone, 20 February 1996, Fort Leavenworth, KS.

³Richard Sharpe, ed., Jane's Fighting Ships 1995-96. (Alexandria, VA: Jane's Information Group Inc., 1995), 790.

⁴Thomas J. Cutler, Brown Water Black Berets. (Annapolis, MD: Naval Institute Press, 1988), 92.

⁵Edward J. Marolda and G. Wesley Price, III, A Short History of the United States Navy and the Southeast Asian Conflict 1950-1975. (Washington, DC: Naval Historical Center, Department of the Navy, 1984), 3.

⁶Marolda, 4.

⁷Ibid., 5.

⁸Ibid., 7.

⁹Ibid., 7.

¹⁰Ibid.

¹¹Ibid., 8.

¹²Ibid.

¹³Ibid., 9.

¹⁴Ibid., 25.

¹⁵Ibid.

¹⁶Ibid., 26.

¹⁷Ibid.

¹⁸Ibid., 11.

¹⁹Ibid., 44.

²⁰Ibid., 8, 12, 44-45.

²¹Ibid., 45.

²²Ibid., 46-47.

²³Ibid., 62.

²⁴Ibid., 48-49.

²⁵Ibid., 49.

²⁶Cutler, 134.

²⁷Ibid.

²⁸Ibid., 135.

²⁹Marolda, 50-52.

³⁰Cutler, 182. Detachment ALPHA also sent boats to sweep the harbors of Da Nang, Qui Trang, and Cam Rahn Bay.

³¹Marolda, 66.

³²Ibid., 52.

³³Cutler, 184.

³⁴Marolda, 54.

³⁵Cutler, 158.

³⁶Marolda, 54-55.

³⁷Cutler, 183-184.

³⁸Marolda, 56.

³⁹Ibid.

⁴⁰Ibid., 58.

⁴¹Marolda, 75-76.

⁴²Ibid., 95.

⁴³Cutler, 101.

⁴⁴"National Security Strategy," 9.

⁴⁵Ibid., 28.

⁴⁶Ibid.

⁴⁷"National Military Strategy," 11.

⁴⁸"Forward ...From the Sea," 10.

⁴⁹"The politics of hunger," The Economist, 338 (27 January - 2 February 1996): 32.

⁵⁰Ibid.

⁵¹Earl H. Tilford, "Introduction," in World View: The 1996 Strategic Assessment From the Strategic Studies Institute, by the Strategic Studies Institute (Carlisle Barracks, PA: U.S. Army War College, 1996), 4.

⁵²Knowledge the author received as operations officer aboard USS California (CGN 36) during the Kitty Hawk Battle Group deployment to the Korean area during the summer and fall of 1994.

⁵³"South Korea," by the Central Intelligence Agency (World Wide Web, 21 February 1996).

⁵⁴Based on personal knowledge gained from deployment to South Korean waters. This density is most apparent at night while the squid fishermen are plying their trade. While not as common during the day time this density can be reached or exceeded if the anchovy schools are present, and the fishermen are trying to catch them.

⁵⁵The figure 12,000 is conservative. This is based on in part on Korea having a longer coast line than Vietnam, the great density of boats in the waters, the fact that for great part of South Korea's coast cannot be extended past 40 miles, much less 12 miles and not cross into another countries territorial waters.

⁵⁶"National Security Strategy," 21.

⁵⁷Ibid., 30.

⁵⁸Ibid.

⁵⁹Ibid., 30-1.

⁶⁰"National Military Strategy," 11.

⁶¹Tilford, The 1996 Strategic Assessment, 6.

⁶²Ibid.

⁶³"Unrest in Bahrain," The Kansas City Star, 24 February 1996, sec. A, p. 7.

⁶⁴Iran 1994-5, Country Profile Series. (London: The Economist Intelligence Unit, 1994), 8.

⁶⁵Angello Codevilla, and Paul Seabury, War: Ends and Means. 2d ed., (New York: Basic Books, 1990), x.

⁶⁶Kuwait, Saudi Arabia, Bahrain [and] Qatar, United Arab Emirates, Oman [and] Yemen 1994-5, Country Profile Series. (London: The Economist Intelligence Unit, 1994) pages unnumbered. Coastline distances were measured from maps and scales provided on the inside covers of these profiles.

⁶⁷Based on the authors experience in the Persian Gulf during the summer and fall of 1987.

⁶⁸Bahrain [and] Qatar, 12.

- ⁶⁹Cutler, 172. The periodical from which the quoted article appeared was not identified.
- ⁷⁰Colombia 1994-5. Country Profile Series. (London: The Economist Intelligence Unit, 1994), 3-4, 6, and 9.
- ⁷¹*Ibid.*, 25.
- ⁷²"National Security Strategy," 1.
- ⁷³*Ibid.*, 30.
- ⁷⁴*Ibid.*, 11.
- ⁷⁵"National Military Strategy," 3.
- ⁷⁶*Ibid.*, 4.
- ⁷⁷*Ibid.*, 9.
- ⁷⁸Tilford, The 1996 Strategic Assessment, 5-6.
- ⁷⁹"Enough, Samper," The Economist, 338 (17-23 February 1996): 32.
- ⁸⁰"The President's Drug Connections," Washington Post National Weekly Edition, 12-18 February 1996, 16.
- ⁸¹"Fighting Drugs at the Source," U.S. Naval Institute Proceedings, 120 (July 1994): 53.
- ⁸²*Ibid.*, 54.
- ⁸³John Greenwald, "At War on All Fronts," Time, 130 (17 August 1996): 25-31.
- ⁸⁴Michael Duffy and David S. Jackson, "Into Rough Water," Time, 130 (10 August 1987): 8.
- ⁸⁵Personal knowledge of the author, who performed the duties of intelligence officer and electronic warfare officer aboard, USS Guadalcanal (LPH 7), an Amphibious Assault Ship, and flagship for the commander of the mine-sweeping forces.
- ⁸⁶*Ibid.*
- ⁸⁷John Greenwald, "At War on All Fronts," 25.
- ⁸⁸Copy of Briefing Slides for Commander, Special Boat Squadron One. Coronado, CA: 1996.
- ⁸⁹Congress, "U.S. Policy Toward Haiti," Congressional Digest, (Washington, DC: Government Printing Office, September 1994), 202.
- ⁹⁰*Ibid.*, 199.
- ⁹¹OSCM Conner.

⁹²“Current CIA World Factbook” by the Central Intelligence Agency, (World Wide Web, 21 February 1996).

⁹³OSCM Conner.

⁹⁴Congress, 197.

⁹⁵“National Security Strategy,” ii.

⁹⁶Ibid., 1.

⁹⁷Ibid., 23.

⁹⁸Donald E. Schultz, “Latin America,” 1996 Strategic Assessment, p. 28.

⁹⁹Ibid., 30.

¹⁰⁰Ibid., 31.

¹⁰¹LCDR Linda Sullivan of the staff of President, Board of Inspection and Survey, interview by author, telephone, 20 February 1996, Fort Leavenworth, KS.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

Adequacy of the Brown Water Force

Chapter one asked the thesis question, "Does the U.S. Navy need to enlarge her coastal and riverine force capabilities to effectively meet the joint, combined, and unilateral missions of today and tomorrow?" This question is timely since the Navy has stated in the white paper "Forward ...From the Sea" that the Navy has changed its strategic focus from blue water combat to combat in the littoral environment. Since brown water craft are designed in the littoral and indeed are the only combatant craft the Navy has which can operate in shallow water, it is important to determine if the U.S. Navy's brown water force has sufficient numbers to help the U.S. armed forces achieve dominance in this region.

The Navy's white paper does not use ends, ways, and means to formulate strategy. However, it does state that the Navy supports the "National Security Strategy" which identifies ends, ways and means, and the regions of the world which are of vital interest to the U.S. So in determining what the Navy's brown water force structure should be, the ends, ways, and means and regions of the world identified by the "National Security Strategy" and "National Military Strategy" in which littoral operations are likely were analyzed, particularly those regions suited for brown water forces. The U.S. strategy was examined to find the missions which brown water forces can significantly contribute to.

A tool is needed to determine the size of the brown water force necessary for the missions identified in the "National Security Strategy" and "National Military Strategy." To create this tool, the missions executed by the brown water forces during the Vietnam War were analyzed. Mission success and the corresponding necessary force size was analyzed. Based on the experience of the Vietnam War, generic force requirements were established to be applied to the potential conflicts identified in the "National Security Strategy" and "National Military Strategy." The following tools were developed in

chapter four: one patrol craft is required for every 3.27 miles of coast, one patrol craft is needed to inspect 27.3 boats per day, and a pair of boats can patrol 40 miles of river (see pages 34 and 44 for the development of these figures).

These tools were used to analyze the brown water force required to achieve the ends of the NSS in hypothetical involvement in littoral regions. The scenarios analyzed were: a conflict on the Korean Peninsula, Iranian support for insurgency movements in the GCC countries, control of the rivers in Colombia to halt the flow of cocaine, and a blockade of Haiti. The number of U.S. brown water craft necessary to effectively perform the missions in the above scenarios are:

- | | |
|---------------------------|----------------|
| 1. Korea | 98 - 108 craft |
| 2. Iran-GCC | 98 craft |
| 3. Colombia | 258 |
| 4. Haiti | 214 |
| 5. U.S. brown water force | 205-223 |

The fundamental conclusion of this study is that the U.S. brown water force is sufficient to meet any of the above scenarios. The number of craft identified for Colombia could probably be reduced when the Colombians rebuild their riverine force, or if any two of the 20 riverine entrances to Colombia were eliminated in the trafficking of narcotics and precursor chemicals.

The answer to the question "Is this number sufficient to meet the Navy's strategy?" is not so clear. This, however, is the Navy's obligation to support the "National Security Strategy" and "National Military Strategy."

In discussing major regional conflicts (MRCs) the "National Security Strategy" states "With programmed enhancements, the forces the Administration is fielding will be sufficient to help defeat aggression in two nearly simultaneous major regional conflicts."¹ The chairman of the Joint Chiefs of Staff, General John M. Shalikashvili, states in his cover letter to the "National Military Strategy," "With worldwide interests and challenges, the United States must maintain its capability to deal with more than one crisis at a time. For this reason, our Armed Forces must maintain the capability to fight and win two

nearly simultaneous regional contingencies, even as we continue to restructure and reduce the size of the force.”²

There are some semantic differences between the “National Security Strategy” and “National Military Strategy” regarding the two MRC capability. The “National Security Strategy” implies that this capability will be achieved in the near future, while the NMS requires that this capability be maintained. In any event the Navy has the brown water force structure to meet the needs of the two least demanding of the four contingencies listed above. If the two nearly simultaneous MRCs include Colombia or Haiti, then the force structure is not adequate to meet the needs of national strategy. Of course if “nearly simultaneous” is interpreted to mean sequential and presumes minimal casualties to the forces involved in the first MRC, then the Navy can certainly support two sequenced MRCs.

The Navy’s current procurement program for brown water craft will not solve the two MRC dilemma, because these numbers were already included in the total force numbers. So, the PC and Mark V programs do not solve the two MRC dilemma, and there is no current proposal to solve this problem.

It is also important to note that brown water forces will probably not win a conflict on their own; they are just a portion of the force structure needed to support the whole campaign. Indeed, should the theater commander choose not to use brown water forces in a littoral environment, unlikely as this may be, he could probably still win the campaign. His job would just be much more difficult. If the theater commander happened to be in charge of the second of the “two nearly simultaneous MRCs” then he may be forced to go without the support of U.S. brown water forces. However, brown water forces may also be an effective economy of force option during the transition of focus from one MRC to a second.

The U.S. Navy probably will not be able to provide brown water support to two MRCs. This brings back the question why this shortfall exists. On the surface it appears that if the theater commanders in chief do not spell out their brown water force requirements to the Chairman of the Joint Chiefs of Staff and the commander of Naval Special Warfare Command, the Navy’s agent for brown water force structure, then the fault rests with them. However, fault must also rest with the Navy, as the provider of brown water forces.

The Navy, as are the rest of the services, is confronted with the dilemma of what will be the ideal weapon systems needed to confront the expected threat of the future. The challenge lies in determining the force structure balance between traditional combat, i.e. conventional warfare, and the growing force requirements to support military operations other than war (MOOTW). This problem is further exacerbated by the lack of resources the Navy is already experiencing. The pamphlet, "Force 2001 A Program Guide to the U.S. Navy," 1995 edition, explains that the U.S. Navy must maintain sufficient numbers of surface combatants to perform the traditional operational missions of the Navy, without requiring the force to spend excessive time at sea. It goes on to say that the current force structure is inadequate, and therefore is spending greater time at sea than is desirable.³ The pamphlet closes out its discussion on force structure with the following statement (bold face type in the original text):

Projected naval force structure is inadequate for today's level of operations: contingency operations cannot be funded by greater reductions in force structure. The Navy will work diligently to identify resources to arrest the continued reduction in force structure resulting from early decommissioning [of ships].⁴

The U.S. Navy's financial concerns are primarily focused on maintaining adequate force levels to meet traditional blue water needs. The blue water force structure can be very influential in littoral operations, but cannot duplicate the services which the brown water forces perform. It therefore appears, whether consciously or unconsciously, the Navy has decided to maintain its current brown water force structure, and to concentrate on maintaining or increasing its traditional forces.

That the Navy needs a strong aircraft carrier force, amphibious force, and submarine force is not questioned. The question of whether the Navy needs a stronger brown water force is equally important. A great portion of the analysis conducted in this study was based on the ends, ways, and means of achieving national strategic goals as spelled out in the "National Security Strategy" and "National Military Strategy." This was necessary because the Navy's strategy in the white papers is not patterned after the "National Security Strategy" and "National Military Strategy" and therefore does not identify ends, ways, and means. If the Navy developed a strategy based on the missions outlined in the "National Security Strategy" and "National Military Strategy," then the force structure to meet the needs of the national level

strategy, and particularly the brown water force structure would receive much closer analysis than it apparently has.

The "National Military Strategy" lists twenty two means by which it will achieve the national military objectives.⁵ All of these should be achievable with the present joint force structure. If the Navy were to identify how its resources could best support the twenty two means, commitment of brown water forces would be significant. Just the six means listed under the way of peacetime engagement, military-to-military contacts, nation assistance, security assistance, humanitarian operations, counterdrug and counterterrorism, and peacekeeping, demonstrate the importance of brown water forces.⁶ Any one of these used in a Third World country dependent on waterborne transportation shows the usefulness of brown water forces in assisting the joint effort.

Traditional naval missions such as sea control and delivery of material overseas assist in achieving the means listed above. As a matter of fact, they could be critical to mission success. However, the Navy could better support the national strategy if it would analyze the brown water contribution which could be made in these situations.

The final conclusion is that the current and future brown water force structure is adequate to support one MRC. For this to change the Navy needs to pay much more attention to the potential brown water contribution to the nation's strategies. This should be reflected in much more detail in significant naval documents such as the next white paper, NDP 1, and Force 2001 booklet. This can be best summed up in the classic phrase: Strategy should determine force structure, force structure should not determine strategy.

The following proposed brown water force structure is provided. The brown water force structure should contain at least 350 craft. This number would allow the Navy to fully support any single MRC requirement, concurrently provide approximately 50 craft to a LIC or MOOTW type of operation, and not strip the USCG of the assets it uses to perform its daily mission.

The need for a credible brown water force is real. The Navy desires to focus on the littorals of the world, and the brown water force is an intimate part of naval force needed to affect this area. There

are significant potential MRCs which would benefit greatly from the contribution of a robust U.S. brown water force. The increasing number of MOOTW missions also call for brown water support. The traditional naval blue water forces cannot patrol riverine lines of communications in support of disaster relief or peace operations. FIDs are an integral portion of the forward presence strategy in the "National Military Strategy." Most third world nations do not need training in blue water operations, they need training in brown water operations, thus creating the need for a greater commitment of U.S. brown water forces.

The Possible Future of Brown Water Forces

Lieutenant Colonel Art Corbett, an officer on the staff of the chief of naval operations, has discussed a potential revolution in brown water forces. His office is exploring the feasibility of creating a force to dramatically improve operational maneuver from the sea in the conduct of land campaigns. In this vision, new classes of hover-craft will carry Army and Marine Corps forces hundreds of miles inland from any coast. These new, brown water craft would be able to operate over any relatively flat terrain. These craft would be able to carry numerous troops and provide their own direct and indirect fires. This would provide the striking power for the land component commander until traditional tanks, infantry fighting vehicles, and artillery were ready to assume these responsibilities. These craft would have heavy lift capability and would greatly enhance the flow of logistics from the shore inland.

This concept has acquired some urgency as a means of providing the U.S. a credible capability to project forces into theater. With the withdrawal of U.S. forces from many overseas bases, this idea may grow in importance for the joint force of the future. If this vision of the future reaches fruition, then the new brown water force structure may become the preeminent arm of the Navy.

While this vision is only in the future stage, it does show some intellectual commitment on the part of the Navy to address the littoral strategy through emphasis on brown water craft. This vision, however, is just an idea, and is not at this time a commitment by the Navy to further development.

Recommendations

This research lead to several recommendations. These can be broadly broken into two groups: First recommendations to improve the brown water force; and second, recommendations for areas of future study.

To improve the brown water force the following should be done: Analyze the craft being procured for suitability to perform all brown water missions; Put in place an inspection mechanism to report on the material condition of the brown water force; and Lastly, identify how the brown water force meets national, military, and naval strategic requirements.

The newest craft in the brown water inventory are the PC, Mark V, and RIB. These were designed with an emphasis on special warfare support, i.e. providing a vehicle to transport SEALs. This is a valid requirement. However, these craft should be multi-mission capable. Of particular concern is the adequacy of the RIB. The RIB is built with a large inflated rubber skirt around the edge of the boat. This contributed greatly to the stability of the craft in high performance maneuvers and general sea keeping capability, which are desirable traits. The drawback in this design is the tendency for the skirt to puncture. If these are to be regularly used in boarding and searching craft, as was characteristic during the Market Time and Game Warden Operations, then the skirt may puncture. A punctured skirt is a detriment to the sea-keeping capability of the RIB. This lesson was previously learned during the Vietnam War, when the fiberglass hulled Mark I patrol boat had to be replaced by the aluminum hulled Mark II, as described in chapter four. Repeatedly pulling along side indigenous craft which purposely or inadvertently had a sharp object (such as a simple nail head) was too much for the Mark I and would likely be too much for the RIB. This deficiency is even more important in view of the fact that 44 of the Navy's 126 craft are RIBs. If the U.S. finds the need to conduct coastal and riverine interdiction, the rubber skirt on the RIBs will be a major detriment to mission success.

The potential deficiency of the rubber skirt on the RIB might have been corrected if a proper material inspection organization had been in place to judge the adequacy of this craft. It has already been pointed out that the reserve special boat units face significant material problems with their Vietnam War

era equipment. These types of problems are normally identified and corrected by the various inspection and survey boards. It is recommended that the president of the Board of Inspection and Survey designate the two regional boards, or the commander, Naval Special Warfare Command, be the agent to conduct biannual inspection of the boats already in inventory and acceptance trials of the new craft. The biannual inspections of commissioned ships are rigorous. Each system, down to the nuts and bolts, is inspected to insure that it meets its specified performance criteria. This inspection reveals faults in particular ships, and develops trends of deficiencies which may plague a class of ships. The results of these inspections are briefed to the Chief of Naval Operations and Congress. If this type of inspection were conducted on the SBU craft, then the lack of material readiness of the reserve boat units would be brought to the proper level of attention, and hopefully be fixed. Also, since these inspection require the demonstration of all of the expected missions of the vessels, the deficiency of the RIBs might have been identified, and a new class of boat might have been procured which is not vulnerable to material degradation when it comes alongside another boat.

The last recommendation is to identify how the brown water force can best meet the needs of national strategy. This is the most important recommendation. If the brown water force had received the same level of attention as the other elements of the naval force in the white papers and other capstone documents, then the brown water force would probably be bigger, and materially better off.

There are two topics of further study. These are: to develop a data base on boat densities found in the worlds littorals; and to develop a true computer model to determine the number of craft required to patrol a particular length of river or coastline to intercept boats in various densities.

The completion of the boat density study will be necessary to make the computer models worthwhile. This study would also be advantageous to other areas of naval warfare. In anti-submarine warfare, where sonobouys are dropped from aircraft and ships to locate submarines, knowledge of the density of fishing craft in various areas could be critical. Fishing nets catch sonobouys just as well as they catch fish. Therefore, it could be impractical to use aircraft in a certain region and other anti-submarine platforms, not vulnerable to fishing nets, could be dispatched to the area in question. On a more practical

day-to-day level this data base would prevent the embarrassment of the U.S. Navy scheduling exercises overseas in areas which are dense with boat traffic.

The computer model of the required number of patrol craft needed to accomplish a particular mission will be of great use to future brown water planners. If this model is developed and the numbers of craft in a region are determined, then the U.S. Navy or theater CINC could determine the brown water force structure needed to accomplish expected missions. This computer model, accompanied with a thorough review of the role of the brown water force in national strategy, could determine the size of the desired force structure.

¹"National Security Strategy," 9.

²"National Military Strategy," cover letter, unnumbered.

³Department of the Navy, Force 2001: A Program Guide to the U.S. Navy. (Washington, DC: Deputy Chief of Naval Operations: Resources, Warfare Requirements and Assessments (N8), 1995), 17.

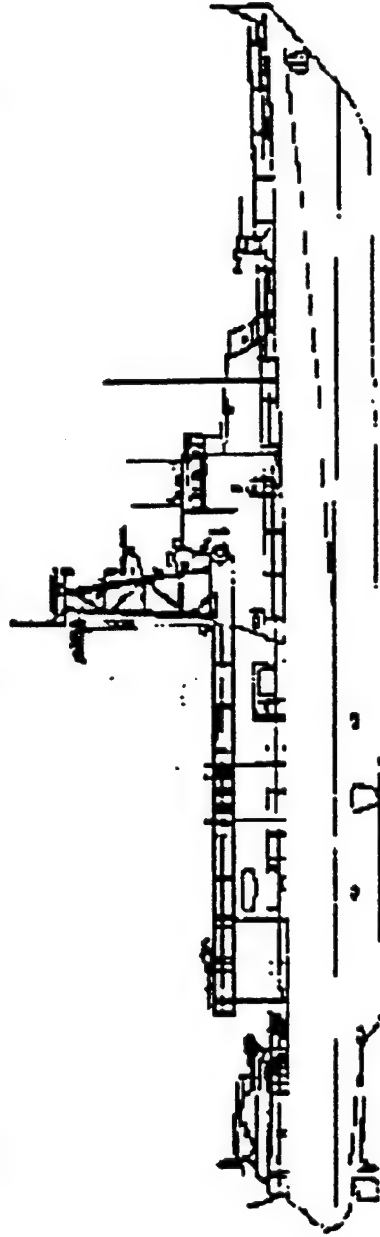
⁴Ibid.

⁵"National Military Strategy," 4.

⁶Ibid.

170' PATROL, COASTAL (PC)

MANUFACTURED BY BOLLINGER, LA.



- **A LONG RANGE COMBATANT CRAFT DESIGNED SPECIFICALLY FOR SPECWAR SUPPORT**
- **13 ARE BEING BUILT, WITH 4 FOR SBR-1**
- **THE CREW CONSISTS OF 4 OFFICERS AND 24 ENLISTED. THE CO IS AN 1110 LCDR SERVING IN THE SECOND PART OF A "SPLIT" DEPARTMENT HEAD TOUR.**

SPECIAL BOAT SQUADRON ONE

Fig. 1. 170' Patrol, Coastal (PC), Special Boat Squadron One Slide.

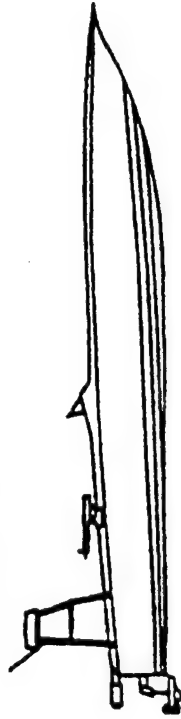
170' PATROL COASTAL (PC)

IOC:	JULY 1993
MISSION:	COASTAL PATROL & INTERDICTION, SPECWAR SUPPORT
CREW/PAX:	4 OFF/24 ENL/9 PAX
ARMAMENT:	2 25mm MK-38 CHAIN GUNS, STINGERS, .50-CAL MG M-60 MG, MK-19 GL
SPEED	35 KTS
RANGE:	2,000 NM
BEAM:	25 FEET
WEIGHT:	321 TONS
DRAFT:	7.8 FEET
ENGINES:	4 PAXMAN 3800HP DIESELS
PROPULSION:	4 SHAFTS
	SPECIAL BOAT SQUADRON ONE

Fig. 2. 170' Patrol, Coastal (PC) Data, Special Boat Squadron One Slide.

40' HIGH SPEED BOAT (HSB)

MANUFACTURED BY FOUNTAIN and HALTER MARINE, FL.

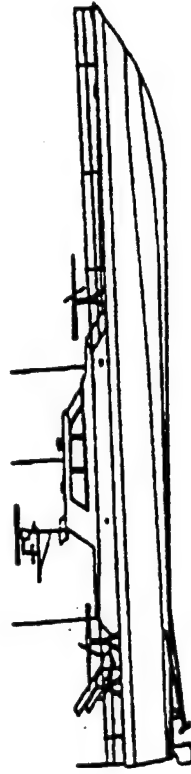


IOC:	1990 - 1993
MISSION:	SPECWAR SUPPORT
CREW:	3/12
ARMAMENT:	M-60, 4 .50-CAL, MK-19
SPEED:	60 KTS
RANGE:	150 NM
BEAM:	9 FEET
WEIGHT:	8.5 TONS
DRAFT:	3.5 FEET
ENGINES:	2 CHEVROLET ENGINES
PROPULSION:	MERCURISER OUTDRIVES SPECIAL BOAT SQUADRON ONE

Fig. 3. 40' High Speed Boat (HSB), Special Boat Squadron One Slide.

65' MK III SEA SPECTRE PATROL BOAT (PB)

MANUFACTURED BY PETERSON BUILDERS, WI.

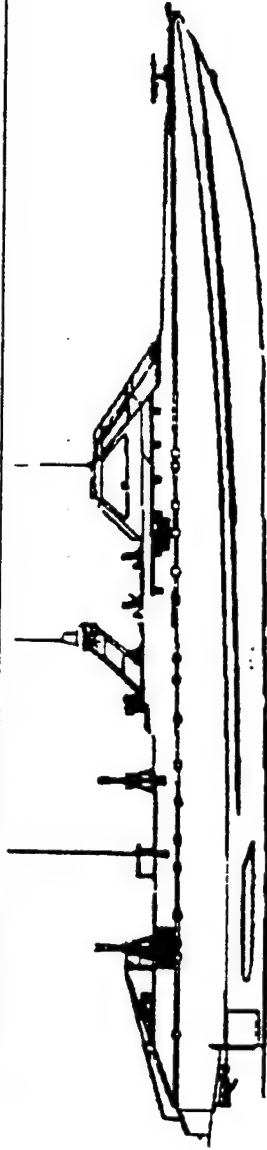


IOC:	1975
MISSION:	COASTAL PATROL & INTERDICTION, SPECWAR SUPPORT
CREW/PAX:	7/18
ARMAMENT:	81mm MORTAR, 60mm MORTAR, .50-CAL, M-60, MK-19, 20mm
SPEED:	25 KTS
RANGE:	400 NM
BEAM:	18 FEET
WEIGHT:	41.5 TONS
DRAFT:	6 FT
ENGINES:	3 DETROIT DIESEL 8V92/8V71'S
PROPULSION	SPECIAL BOAT SQUADRON ONE 3 SHAFTS

Fig. 4. Mk III Sea Spectre Patrol Boat (PB), Special Boat Squadron One Slide.

82' MK V SPECIAL OPERATIONS CRAFT (SOC)

MANUFACTURED BY HALTER MARINE, FL.

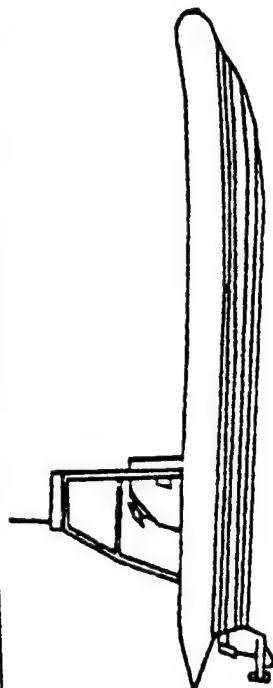


IOC:	FISCAL YEAR 1996
MISSION:	COASTAL PATROL, SPECWAR SUPPORT
CREW/PAX:	5/16
ARMAMENT:	6 M-60 or 6 MK-19 or 6 .50-CAL
SPEED:	52 KTS
RANGE:	675 NM
BEAM:	17.5 FEET
WEIGHT:	57 TONS
DRAFT:	5 FEET
ENGINES:	2 MTU 12V396 DIESELS
PROPULSION:	2 KAMEWA WATERJETS
	SPECIAL BOAT SQUADRON ONE

Fig. 5. 82' Mk V Special Operations Craft, Special Boat Squadron One Slide.

24' RIGID INFLATABLE BOAT (RIB)

MANUFACTURED BY WILLARD and DEFENDER



IOC:	WILLARD 1987 - 1989	DEFENDER 1992 - 1995
MISSION:	SPECWAR SUPPORT	
CREW/PAX:	2/4	9 FEET
ARMAMENT:	M-60	3 TONS
SPEED:	28 KTS	3 FEET
RANGE:	120 NM	
ENGINES:	1 VOLVO PENTA	VOLVO PENTA
		OUTDRIVES
		SPECIAL BOAT SQUADRON ONE

Fig. 6. 24' Rigid Inflatable Boat (RIB). Special Boat Squadron One Slide.

10 METER RIGID INFLATABLE BOAT (RIB)

MANUFACTURED BY BOLLINGER, LA.

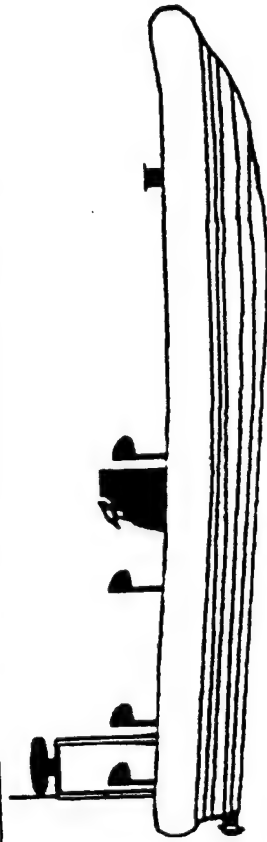


IOC:	AUG - NOV 1984
MISSION:	SPECWAR SUPPORT
CREW/PAX:	3/8
ARMAMENT:	2 M-60 or 2 MK-19
SPEED:	38.5 KTS
RANGE:	250 NM
BEAM:	9 FEET
WEIGHT:	17,600 LBS
DRAFT:	3 FEET
ENGINES:	2 400 CUMMINGS
PROPULSION:	HAMILTON JETS
	SPECIAL BOAT SQUADRON ONE

Fig. 7. 10 Meter Rigid Inflatable Boat (RIB). Special Boat Squadron One Slide.

30' RIGID INFLATABLE BOAT (RIB)

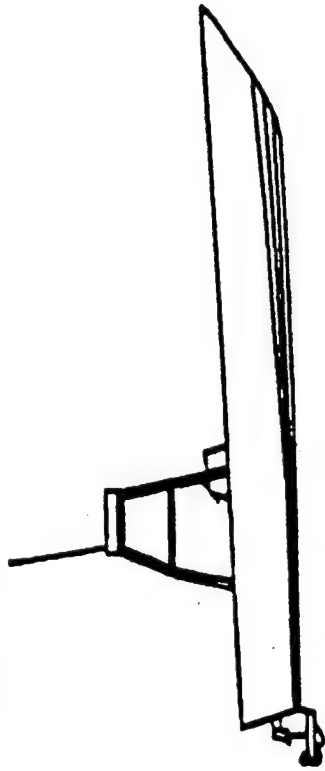
MANUFACTURED BY NOVAMARINE AMERICA, FL.



IOC:	1990		
MISSION:	SPECWAR SUPPORT		
CREW:	3/8	BEAM:	10.75 FEET
ARMAMENT:	M-60	WEIGHT:	7 TONS
SPEED:	30 KTS	DRAFT:	2.75 FEET
RANGE:	150 NM		
ENGINE:	2 IVECO	PROPULSION:	PARKER
			WATER JETS
			SPECIAL BOAT SQUADRON ONE

Fig. 8. 30' Rigid Inflatable Boat (RIB), Special Boat Squadron One Slide.

32' IRANIAN REVOLUTIONARY GUARD GUNBOAT (IRGB)



- **BACKGROUND: FORMERLY AN ASSET OF THE IRANIAN REVOLUTIONARY GUARD, THIS CRAFT WAS SALVAGED DURING OPERATION EARNEST WILL IN 1988**
 - **MISSION: PROVIDES SHIP ATTACK TRAINING FOR THE FLEET, POSING AS THE AGGRESSOR CRAFT**
 - **CREW: 3**
 - **ARMAMENT: NONE**
 - **SPEED: 40 KTS**
 - **RANGE: 120 NM**
 - **ENGINES: 2 VOLVO PENTA**
 - **PROPULSION: VOLVO PENTA OUTDRIVES**
- SPECIAL BOAT SQUADRON ONE**

Fig. 9. 32' Iranian Revolutionary Guard Gunboat (IRGB). Special Boat Squadron One Slide.

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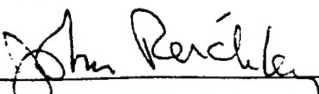
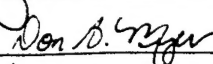
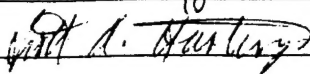
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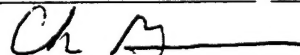
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